

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : SCA 11,0U14  
 Edition : 24.8.87  
 Superceeded : 11.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 646 827 0  
 Injection pump  
 Pump designation : PE6P120A72ORS70010  
 EP type number : 0 412 626 800  
 Governor  
 Governor design. : RQ200/1000PA713-1  
 Govenrer no. : 0 421 801 324

Customer-spec. information  
 Customer : SCANIA

Engine : DS11 30

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Calibrating nozzle-holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Perforated-plate  
 diameter mm : 0.8  
 Test inj. tubing : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27  
 Prestroke mm : 5,00...5,10  
 : (4,95...5,15)  
 Contr.-rod trav.mm: 9,00...12,00

A01

Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 700  
 -----  
 Contr.-rod trav.mm: 10,80...10,90  
 -----  
 Del.quantity cm3/ : 14,0...14,2  
 -----  
 100H.: (13,7...14,5)  
 -----  
 Dispersion cm3/ : 0,5  
 -----  
 100H.: (0,8)

2nd speed 1/min: 225  
 Contr.-rod trav. m: 4,90...5,10  
 Del.quantity cm3/ : 1,3...1,7  
 100H.: (-)  
 Dispersion cm3/ : 0,3  
 100H.: (0,6)

**SLEEVE POSITION**

Control-lever position  
 Degree: 45...47  
 Speed 1/min: 800  
 Cont.-rod travelmm: 15,20...17,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 700  
 Charge press. hPa : 900  
 Del.quantity cm3/ : 140,0...142,0  
 1000H.: (137,0...145,0)  
 Dispersion cm3/ : 5,0  
 1000H.: (8,0)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 35...43

Setting point:  
 Speed 1/min : 800  
 Contr.-rod trav.mm: 16,5

**Testing:**

1st c-rod trav.mm : 9,80  
 Speed 1/min : 1045...1060  
 2nd c-rod trav.mm : 4,00  
 Speed 1/min : 1175...1205

4th speed 1/min : 1300  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13  
Setting point w/out aux. spring  
Speed 1/min : 225  
Contr.-rod trav.mm: 4,50

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5,90  
Speed 1/min : 225  
C-rod trav.mm : 4,50  
C-rod trav.mm : 2,00  
Speed 1/min : 300...340

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 11,70...11,80

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 10,40...10,50  
2nd pressure hPa : 165  
C-rod trav.mm : 10,50...10,70

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 1000  
Del.quantity cm3/ : 143,0...151,0  
1000H.: (141,0...153,0)  
Speed 1/min : 500  
Del.quantity cm3/ : 120,0...124,0  
1000H.: (118,0...126,0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than

full-load trav.mm: 9,80  
Speed 1/min : 1045...1060

#### STARTING FUEL DELIVERY

Speed 1/min : 100

A02

Del.quantity cm3/ : 240,0...290,0  
1000H.: (-)  
Contr.-rod trav.mm: 20,00...21,00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4,40...4,60

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-06-04  
Start of delivery - engine: 15° before  
TDC  
Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,1 C  
Edition : 26.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 829  
Injection pump  
Pump designation : PE6P130A32ORS7113  
EP type number : 0 412 636 803  
Governor  
Governor design. : RQ250/775PA770  
Governor no. : 0 421 801 316

Customer-spec. information  
Customer : VOLVO

Engine : TJD121LG

1st version kW : 300.0  
Speed 1/min: 1550

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

A03

Prestroke mm : 3.00...3.10  
                  : (2.95...3.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 750  
-----  
Contr.-rod trav.mm: 13.20...13.30  
-----  
Del.quantity cm<sup>3</sup>/ : 29.5...29.8  
-----  
100H.: (29.2...30.2)  
-----  
Dispersion cm<sup>3</sup>/ : 0.6  
-----  
100H.: (1.0)  
-----

2nd speed 1/min: 250  
Contr.-rod trav. m: 4.00...4.20  
Del.quantity cm<sup>3</sup>/ : 1.7...2.3  
100H.: (-)  
Dispersion cm<sup>3</sup>/ : 0.4  
100H.: (0.8)

## SLEEVE POSITION

Control-lever position  
Degree: 45...47  
Speed 1/min: 600  
Contr.-rod travelmm: 19.20...20.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 750  
Charge press. hPa : -  
Del.quantity cm<sup>3</sup>/ : 295.5...298.5  
1000H.: (292.0...302.0)  
Dispersion cm<sup>3</sup>/ : 6.00  
1000H.: (10.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 30...38

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 12.20

Speed 1/min : 820...835  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 865...895  
4th speed 1/min : 950  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13  
Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 4.10

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.50  
Speed 1/min : 250  
C-rod trav.mm : 4.10  
C-rod trav.mm : 2.00  
Speed 1/min : 280...320

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 12.20  
Speed 1/min : 820...835

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 310.0...350.0  
1000H.: (306.0...356.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 16,0 A  
Edition : 24.07.87  
Superceeded : 9.86  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 832  
Injection pump  
Pump designation : PE6P130A72ORS7122  
EP type number : 0 412 636 804  
Governor  
Governor design. : RQV225...93OPA799  
Governor no. : 0 421 813 544

Customer-spec. information  
Customer : VOLVO

Engine : TD162 F

1st version kW : 343.0  
Speed 1/min: 1860

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
                  : (3.55...3.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm3/ : 27.4...27.7

100H.: (27.1...28.1)

Dispersion cm3/ : 0.6

100H.: (1.0)

2nd speed 1/min: 250

Contr.-rod trav. m: 5.00...5.20

Del.quantity cm3/ : 2.5...3.0

100H.: (2.3...3.3)

Dispersion cm3/ : 0.5

100H.: (0.8)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 1.00...1.40

2nd speed 1/min: 350

Sleeve travel mm: 2.10...2.70

3rd speed 1/min: 700

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 960

Sleeve travel mm: 7.60...7.80

5th speed 1/min: 1045

Sleeve travel mm: 9.00...9.40

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1010

Contr.-rod travelmm: 6.70...9.30

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 700

Del. quantity cm<sup>3</sup>/ : 274.5...277.5  
1000H.: (271.0...281.0)  
Dispersion cm<sup>3</sup>/ : 6.00  
1000H.: (10.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 57...65

#### Testing:

1st c-rod trav.mm : 11.90  
Speed 1/min : 960...972  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1030...1060  
4th speed 1/min : 1150  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.50  
Speed 1/min : 250  
C-rod trav.mm : 5.00...5.20

#### CONSTANT REGULATION

Speed 1/min : 225...400

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 12.90...13.00

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 9.70...9.80  
2nd pressure hPa : 80  
C-rod trav.mm : 10.00...10.10  
3rd pressure hPa : 540  
C-rod trav.mm : 12.50...12.70

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 700  
Del. quantity cm<sup>3</sup>/ : 182.5...185.5  
1000H.: (179.0...189.0)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.90  
Speed 1/min : 960...972

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 125.0...145.0  
1000H.: (-)  
Contr.-rod trav.mm: 9.70...9.80

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 5.00...5.20  
Del. quantity cm<sup>3</sup>/ : 25.5...30.5  
1000H.: (23.0...33.0)

Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (8.00)

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : SCA 11,0 V6  
 Edition : 09.03.87  
 Superceeded : 9.86  
 Calibrating oil : ISO-4113

Combination no. : 0 402 646 834

Injection pump  
 Pump designation : PE6P120A72ORS7004  
 EP type number : 0 412 626 801  
 Governor  
 Governor design. : RQ1020PAS28-3  
 Governor no. : 0 421 801 348

Customer-spec. information  
 Customer : SAAB-SCANIA

Engine : DS11 48.DSI11 47

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Contr.-rod trav.mm: 9.00...12.00

A07

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 970  
 -----  
 Contr.-rod trav.mm: 12.80...12.90  
 -----  
 Del.quantity cm3/ : 21.4...21.6  
 -----  
 100H.: (21.1...21.9)  
 -----  
 Dispersion cm3/ : 0.6  
 -----  
 100H.: (0.9)

**SLEEVE POSITION**

Control-lever position  
 Degree: 45...47  
 Speed 1/min: 600  
 Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 970  
 Del.quantity cm3/ : 214.0...216.0  
 1000H.: (211.0...219.0)  
 Dispersion cm3/ : 6.00  
 1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 20...28

Setting point:  
 Speed 1/min : 600  
 Contr.-rod trav.mm: 16.5

**Testing:**

1st c-rod trav.mm : 11.80  
 Speed 1/min : 1020...1025  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1066...1081  
 4th speed 1/min : 1120  
 C-rod trav.mm : 0.00...1.00

**ROTATIONAL-SPEED LIMITATION**

1st version

1mm control-rod travel less than

full-load trav.mm: 11.80  
Speed 1/min : 1020...1025

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

HIGH IDLE

Contr.-rod trav.mm: 4.90...5.10  
Dispersion cm3/ : 4.00  
1000H.: (7.00)

APPLICATION

Generator set



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : STE 12,0 E  
 Edition : 09.03.87  
 Superceeded : 9.86  
 Calibrating oil : ISO-4113

Combination no. : 0 402 646 835

Injection pump  
 Pump designation : PE6P120A72ORS7123  
 EP type number : 0 412 626 814  
 Governor  
 Governor design. : RQ300/1100PA784-1  
 Govenrer no. : 0 421 801 349

Customer-spec. information  
 Customer : STEYR

Engine : WD615.68

1st version kW : 228.0  
 Speed 1/min: 2200

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.90...5.00  
 : (4.85...5.05)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 1100

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm<sup>3</sup>/ : 17.0...17.2

100H.: (16.7...17.5)

Dispersion cm<sup>3</sup>/ : 0.6

100H.: (1.0)

2nd speed 1/min: 300

Contr.-rod trav. m: 6.30...6.50

Del.quantity cm<sup>3</sup>/ : 1.5...2.1

100H.: (-)

Dispersion cm<sup>3</sup>/ : 0.8

100H.: (1.2)

**SLEEVE POSITION**

Control-lever position

Degree: 45...47

Speed 1/min: 600

Cont.-rod travelmm: 15.60...16.40

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1100

Charge press. hPa : 1200

Del.quantity cm<sup>3</sup>/ : 170.0...172.0

1000H.: (167.0...175.0)

Dispersion cm<sup>3</sup>/ : 6.00

1000H.: (10.00)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 30...38

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 16.0

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1185...1215  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...19  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.40

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.80  
Speed 1/min : 300  
C-rod trav.mm : 6.40  
C-rod trav.mm : 2.00  
Speed 1/min : 405...445

#### TORQUE CONTROL

Dimension a mm : 0.55  
Torque-control curve - 1st version  
1st speed 1/min : 1100  
C-rod trav.mm : 10.20...10.30  
2nd speed 1/min : 700  
C-rod trav.mm : 11.10...11.30  
3rd speed 1/min : 1020  
C-rod trav.mm : 10.30...10.50  
4th speed 1/min : 960  
C-rod trav.mm : 10.70...10.90

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 1200  
Contr.-rod trav.mm: 10.90...11.00

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 8.50...8.60  
2nd pressure hPa : 640  
C-rod trav.mm : 10.40...10.50  
3rd pressure hPa : 460  
C-rod trav.mm : 9.50...9.70

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press, hPa : 1200  
Speed 1/min : 700  
Del.quantity cm3/ : 182.0...188.0  
1000H.: (179.0...191.0)

Charge press, hPa : -  
Speed 1/min : 700  
Del.quantity cm3/ : 121.0...123.0  
1000H.: (118.0...126.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 9.20  
Speed 1/min : 1145...1160

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 230.0...260.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 16,0 B  
Edition : 03.04.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 837  
Injection pump  
Pump designation : PE6P130A72ORS7134  
EP type number : 0 412 636 805  
Governor  
Governor design. : RQV225...930PA849  
Governor no. : 0 421 813 600

Customer-spec. information  
Customer : VOLVO

Engine : TD160

1st version kW : 320.0  
Speed 1/min: 1860

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
                  : (3.55...3.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm3/ : 27.5...27.7

100H.: (27.1...28.1)

Dispersion cm3/ : 0.6

100H.: (1.0)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 5.1...5.3

Del.quantity cm3/ : 2.5...2.9

100H.: (2.2...3.2)

Dispersion cm3/ : 0.4

100H.: (0.8)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 0.90...1.00

2nd speed 1/min: 440

Sleeve travel mm: 3.60...3.90

3rd speed 1/min: 750

Sleeve travel mm: 6.40...6.60

4th speed 1/min: 980

Sleeve travel mm: 7.90...8.10

5th speed 1/min: 1050

Sleeve travel mm: 9.20...9.40

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1010

Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 700

Del. quantity cm<sup>3</sup>/ : 275.0...277.0  
1000H.: (271.0...281.0)  
Dispersion cm<sup>3</sup>/ : 6.00  
1000H.: (10.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 58...66

#### Testing:

1st c-rod trav.mm : 11.90  
Speed 1/min : 975...985  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1040...1070  
4th speed 1/min : 1200  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.60  
Speed 1/min : 225  
C-rod trav.mm : 5.10...5.30

#### CONSTANT REGULATION

Speed 1/min : 225...390

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 12.90...13.00

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.70...9.80  
2nd pressure hPa : 560  
C-rod trav.mm : 12.70...12.80  
3rd pressure hPa : 90  
C-rod trav.mm : 10.00...10.20

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700  
Del. quantity cm<sup>3</sup>/ : 182.0...186.0  
1000H.: (179.0...189.0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than

full-load trav.mm: 11.90  
Speed 1/min : 975...985

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 125.0...145.0  
1000H.: (-)  
Contr.-rod trav.mm: 9.70...9.80

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 5.10...5.30  
Del. quantity cm<sup>3</sup>/ : 25.0...29.0  
1000H.: (22.0...32.0)  
Dispersion cm<sup>3</sup>/ : 4.00  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 T  
Edition : 14.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 838  
Injection pump  
Pump designation : PE6P120A32OLS7808  
EP type number : 0 412 626 816  
Governor  
Governor design. : RQ300/1050PA762-4  
Governor no. : 0 421 801 390

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.30...5.40  
                  : (5.25...5.45)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
  -360

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 13.90...14.10

Del.quantity cm<sup>3</sup>/ : 21.1...21.3

100H.: (20.8...21.6)

Dispersion cm<sup>3</sup>/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.7...6.0

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm<sup>3</sup>/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.50...1.70

2nd speed 1/min: 600

Sleeve travel mm: 5.90...6.10

3rd speed 1/min: 875

Sleeve travel mm: 6.20...6.30

4th speed 1/min: 1100

Sleeve travel mm: 6.60...6.80

5th speed 1/min: 1200

Sleeve travel mm: 9.80...10.20

## SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 600  
Charge press. hPa : 900  
Del. quantity cm3/ : 211.0...213.0  
1000H.: (208.0...216.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 36...44

Setting point:

Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 13.80  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1180...1210  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever  
position degrees: 8...16  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.85

Testing:

Speed 1/min : 200  
C-rod trav.mm min : 7.50  
Speed 1/min : 300  
C-rod trav.mm : 5.85  
C-rod trav.mm : 2.00  
Speed 1/min : 370...410

TORQUE CONTROL

Dimension a mm : 0.30  
2nd speed 1/min : 1050  
C-rod trav.mm : 14.80...15.00  
3rd speed 1/min : 800  
C-rod trav.mm : 15.10...15.30

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 800  
Contr.-rod trav.mm: 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
C-rod trav.mm : 10.80...11.00  
2nd pressure hPa : 550  
C-rod trav.mm : 12.60...12.80  
3rd pressure hPa : 1050  
C-rod trav.mm : 14.00...14.10  
4th pressure hPa : 1150  
C-rod trav.mm : 14.50...14.70

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1350  
Speed 1/min : 1050  
Del. quantity cm3/ : 236.0...239.0  
1000H.: (233.0...242.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : 1350  
Speed 1/min : 800  
Del. quantity cm3/ : 242.0...246.0  
1000H.: (239.0...249.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 135.0...137.0  
1000H.: (132.0...140.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.80  
Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 190.0...210.0  
1000H.: (186.0...214.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 T1  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 646 840

Injection pump  
Pump designation : PE6P120A32OLS7808-1  
EP type number : 0 412 626 817  
Governor  
Governor design. : RQ325/1050PA762-3  
Governor no. : 0 421 801 381

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
: (3.95...4.15)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-120-165-240-285  
-360  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 6

BASIC SETTING

1st speed 1/mi: 600  
-----  
Contr.-rod trav.mm: 14.50...14.70  
-----  
Del.quantity cm3/ : 20.9...21.1  
-----  
100H.: (20.6...21.4)

Dispersion cm3/ : 0.5  
-----  
100H.: (0.9)

2nd speed 1/min: 325.0  
Contr.-rod trav. m: 6.4...6.6  
Del.quantity cm3/ : 1.6...2.2  
100H.: (1.3...2.5)  
Dispersion cm3/ : 0.6  
100H.: (1.0)

(B) Setting of injection pump with externally-mounted governor

SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.50...1.70  
2nd speed 1/min: 600  
Sleeve travel mm: 5.90...6.10  
3rd speed 1/min: 875  
Sleeve travel mm: 6.20...6.30  
4th speed 1/min: 1100  
Sleeve travel mm: 6.60...6.80  
5th speed 1/min: 1200  
Sleeve travel mm: 9.80...10.20

SLEEVE POSITION

Control-lever position  
Degree: 108...110  
Speed 1/min: 600  
Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600  
Charge press. hPa : 800  
Del.quantity cm3/ : 209.0...211.0  
1000H.: (206.0...214.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 36...44

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 14.40  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1195...1225  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever  
position degrees: 8...16  
Setting point w/out aux. spring  
Speed 1/min : 325  
Contr.-rod trav.mm: 6.5

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 8.00  
Speed 1/min : 325  
C-rod trav.mm : 6.50  
C-rod trav.mm : 2.00  
Speed 1/min : 405...445

TORQUE CONTROL

Dimension a mm : 0.30  
2nd speed 1/min : 1050  
C-rod trav.mm : 15.40...15.60  
3rd speed 1/min : 800  
C-rod trav.mm : 15.70...15.90

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 800  
Contr.-rod trav.mm: 14.50...14.70

Measurement  
Speed 1/min : 600



1st pressure hPa : 300  
C-rod trav.mm : 12.20...12.40  
2nd pressure hPa : 450  
C-rod trav.mm : 13.30...13.50  
3rd pressure hPa : 900  
C-rod trav.mm : 14.60...14.70  
4th pressure hPa : 1100  
C-rod trav.mm : 15.30...15.50

#### SWITCH-OVER POINT

Speed 1/min : 245 (265)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 1300  
Speed 1/min : 1050  
Del.quantity cm3/ : 231.0...234.0  
1000H.: (228.0...237.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1300  
Speed 1/min : 800  
Del.quantity cm3/ : 234.0...238.0  
1000H.: (231.0...241.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 133.0...135.0  
1000H.: (130.0...138.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 14.40  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 190.0...210.0  
1000H.: (186.0...214.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 T2  
Edition : 27.03.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump  
Pump designation : PE6P120A32OLS7808  
EP type number : 0 412 626 816  
Governor  
Governor design. : RQV300...1050PA797-2  
Governor no. : 0 421 813 614

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM441 LA

1st version kW : 240.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_ \_ \_ \_

**START OF DELIVERY**

Test pressure, bar: 25...27  
 Prestroke mm : 5.30...5.40  
                   : (5.25...5.45)  
 Contr.-rod trav.mm: 20.00...21.00  
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
                           -360  
 Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/mi: 600  
 -----  
 Contr.-rod trav.mm: 13.80...14.00  
 -----  
 Del.quantity cm3/ : 20.9...21.1  
 -----  
                   100H.: (20.6...21.4)  
 -----  
 Dispersion cm3/ : 0.5  
 -----  
                   100H.: (0.9)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 5.5...5.8  
 Del.quantity cm3/ : 1.6...2.2  
                   100H.: (1.3...2.5)  
 Dispersion cm3/ : 0.6  
                   100H.: (1.0)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300  
   Sleeve travel mm: 1.20...1.40  
 2nd speed 1/min: 600  
   Sleeve travel mm: 4.90...5.10  
 3rd speed 1/min: 1075  
   Sleeve travel mm: 7.40...7.60  
 4th speed 1/min: 1100  
   Sleeve travel mm: 8.00...8.40  
 5th speed 1/min: 1150  
   Sleeve travel mm: 9.00...9.40

**SLEEVE POSITION**

Control-lever position  
   Degree: -1  
 Speed 1/min: 600  
 Contr.-rod travelmm: 15.80...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

**1st version**

Speed 1/min: 600  
 Charge press. hPa : 800  
 Del.quantity cm3/ : 209.0...211.0  
                   1000H.: (206.0...214.0)  
 Dispersion cm3/ : 5.00  
                   1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
   position degrees: 36...44

**Testing:**

1st c-rod trav.mm : 13.60  
   Speed 1/min : 1095...1110  
 2nd c-rod trav.mm : 4.00  
   Speed 1/min : 1170...1200  
 4th speed 1/min : 1300  
   C-rod trav.mm : 0.00...1.50

**LOWEST RATED SPEED I**

Control-lever  
   position degrees: 8...16

**Testing:**

Speed 1/min : 100  
 C-rod trav.mm min : 7.00  
 Speed 1/min : 300  
 C-rod trav.mm : 5.50...5.80

**CONSTANT REGULATION**

Speed 1/min : 300...450

**TORQUE CONTROL**

Dimension a mm : 0.30  
 2nd speed 1/min : 1050  
   C-rod trav.mm : 14.60...14.80  
 3rd speed 1/min : 800  
   C-rod trav.mm : 14.90...15.10

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
 Speed 1/min : 600  
 Pressure hPa : 800  
 Contr.-rod trav.mm: 13.80...14.00

**Measurement**

Speed 1/min : 600  
 1st pressure hPa : 300  
   C-rod trav.mm : 10.70...10.90  
 2nd pressure hPa : 550  
   C-rod trav.mm : 12.60...12.80  
 3rd pressure hPa : 975  
   C-rod trav.mm : 13.90...14.00

4th pressure hPa : 1100  
C-rod trav.mm : 14.40...14.60

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1300  
Speed 1/min : 1050  
Del.quantity cm3/ : 231.0...234.0  
1000H.: (228.0...237.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1300  
Speed 1/min : 800  
Del.quantity cm3/ : 238.0...242.0  
1000H.: (235.0...245.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 133.0...135.0  
1000H.: (130.0...138.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.60  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 190.0...210.0  
1000H.: (186.0...214.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,1 C  
Edition : 14.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 646 845

Injection pump  
Pump designation : PE6P120A72ORS7139  
EP type number : 0 412 626 819  
Governor  
Governor design. : RQV200...1000PA725-2  
Governor no. : 0 421 813 632

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC11 13

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.20...15.30

Del.quantity cm3/ : 23.6...23.8

100H.: (23.3...24.1)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225.0

Contr.-rod trav. m: 5.1...5.7

Del.quantity cm3/ : 1.8...2.2

100H.: (1.6...2.4)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 225  
Sleeve travel mm: 1.20...1.60

2nd speed 1/min: 350  
Sleeve travel mm: 2.40...3.00

3rd speed 1/min: 700  
Sleeve travel mm: 4.80...5.40

4th speed 1/min: 1045  
Sleeve travel mm: 8.40...8.60

5th speed 1/min: 1170  
Sleeve travel mm: 10.10...10.50

**SLEEVE POSITION**

Control-lever position  
Degree: -1

Speed 1/min: 1040

Contr.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

**1st version**

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 236.0...238.0  
1000H.: (233.0...241.0)

Dispersion cm3/ : 6.00  
1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 59...67

**Testing:**

1st c-rod trav.mm : 14.20  
Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00  
Speed 1/min : 1165...1195

4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 7...15

**Testing:**

Speed 1/min : 125  
C-rod trav.mm min : -

Speed 1/min : 225  
C-rod trav.mm : 5.10...5.70

**CONSTANT REGULATION**

Speed 1/min : 225...500

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 15.20...15.30

**Measurement**

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 12.30...12.70

2nd pressure hPa : 535  
C-rod trav.mm : 14.60...14.70

3rd pressure hPa : 290  
C-rod trav.mm : 13.10...13.30

**FUEL-DELIVERY CHARACTERISTICS**

**1st version**

Charge press. hPa : 900  
Speed 1/min : 1000

Del.quantity cm3/ : 226.0...234.0  
1000H.: (224.0...236.0)

Charge press. hPa : -  
Speed 1/min : 500

Del.quantity cm3/ : 169.0...173.0  
1000H.: (167.0...175.0)

**ROTATIONAL-SPEED LIMITATION**

1st version  
Imm control-rod travel less than

full-load trav.mm: 14.20  
Speed 1/min : 1040...1050

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 5.10...5.70  
Del.quantity cm<sup>3</sup>/ : 18.0...22.0  
1000H.: (16.0...24.0)  
Dispersion cm<sup>3</sup>/ : 3.00  
1000H.: (6.00)

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
1987-07-01  
Start of delivery - engine: 15° before  
TDC

A23

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 16,2 A  
Edition : 02.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 849  
Injection pump  
Pump designation : PE6P130A32ORS7137  
EP type number : 0 412 636 806  
Governor  
Governor design. : RQ750PA865  
Governor no. : 0 421 801 401

Customer-spec. information  
Customer : VOLVO

Engine : TID162 AG

1st version kW : 350.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
                  : (3.55...3.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 11.40...11.50

Del.quantity cm3/ : 34.1...34.3

100H.: (33.8...34.6)

Dispersion cm3/ : 0.5

100H.: (0.9)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 341.0...343.0  
1000H.: (338.0...346.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 18...26

Testing:  
1st c-rod trav.mm : 10.40  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 777...785  
4th speed 1/min : 840  
C-rod trav.mm : 0.00...1.00

## ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10.40  
Speed 1/min : 750...755

## STARTING FUEL DELIVERY

Speed 1/min : 100



HIGH IDLE

Speed 1/min : 781  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

Remarks:  
APPLICATION  
Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 16,2 A  
Edition : 05.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 646 850  
Injection pump  
Pump designation : PE6P130A72ORS7140  
EP type number : 0 412 636 807  
Governor  
Governor design. : RQV250...900PA869  
Governor no. : 0 421 813 634

Customer-spec. information  
Customer : VOLVO-PENTA

Engine : TID 162 AP

1st version kW : 357.0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70  
                  : (3.55...3.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm3/ : 29.2...29.4

100H.: (28.8...29.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 3.4...3.6

Dispersion cm3/ : 0.5

100H.: (0.7)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250

Sleeve travel mm: 0.90...1.30

2nd speed 1/min: 350

Sleeve travel mm: 2.00...2.60

3rd speed 1/min: 700

Sleeve travel mm: 4.40...5.00

4th speed 1/min: 925

Sleeve travel mm: 7.30...7.50

5th speed 1/min: 985

Sleeve travel mm: 8.10...8.50

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 960

Cont.-rod travelmm: 9.20

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 292.0...294.0

1000H.: (288.0...298.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 55...63

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 920...925

2nd c-rod trav.mm : 4.00

Speed 1/min : 970...1000

4th speed 1/min : 1100

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

Testing:

Speed 1/min : 100

C-rod trav.mm min : 4.90

Speed 1/min : 225

C-rod trav.mm : 3.40...3.60

CONSTANT REGULATION

Speed 1/min : 250...330

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.20

Speed 1/min : 920...925

Remarks:

Delivery-valve spring pre-tension

3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring

preload on new delivery-valve holders

to 2.9...3.1 mm.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : SCA 14,2 B1  
Edition : 09.03.87  
Superceeded : 9.84  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 648 803  
  
Injection pump  
Pump designation : PE8P120A920/4LS7003  
EP type number : 0 412 628 801  
Governor  
Governor design. : RQ750PA528  
Governor no. : 0 421 801 126

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DS14 41. DSI14 42 43

**TEST BENCH REQUIREMENTS**

Calibrating-oil inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025  
  
Inlet press., bar : 1.50  
  
Calibrating nozzle-holder assembly : 1 688 901 019  
  
Opening pressure, bar : 207...210  
  
Perforated-plate diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**  
Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 7- 3- 4- 5-  
                  6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-  
                          270-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 12.80...12.90  
-----  
Del.quantity cm3/ : 18.7...18.9  
-----  
                  100H.: (18.4...19.2)  
-----  
Dispersion cm3/ : 0.6  
-----  
                  100H.: (0.9)

**SLEEVE POSITION**

Control-lever position  
Degree: 45...47  
Speed 1/min: 600  
Contr.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 187.0...189.0  
                  1000H.: (184.0...192.0)  
Dispersion cm3/ : 6.00  
                  1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever position degrees: 21...29

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 16,5

Testing:  
1st c-rod trav.mm : 11.80  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 784...797  
4th speed 1/min : 850  
C-rod trav.mm : 0.00...1.00

**ROTATIONAL-SPEED LIMITATION**

1st version

Imm control-rod travel less than

full-load trav.mm: 11.80  
Speed 1/min : 750...755

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### HIGH IDLE

Contr.-rod trav.mm: 4.90...5.10  
Dispersion cm3/ : 4.00  
1000H.: (7.00)

Remarks:

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-06-04

Start of delivery - engine:

DS 14 - 18° before TDC

DSI 14 - 17° before TDC

Engine firing sequence: 1-5-4-2-6-3-7-8

#### APPLICATION

Generator set

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : SCA 14,2 B2  
 Edition : 09.03.87  
 Superceeded : 9.84  
 Calibrating oil : ISO-4113

Combination no. : 0 402 648 805

Injection pump  
 Pump designation : PE8P120A920/4LS7003  
 EP type number : 0 412 628 801  
 Governor  
 Governor design. : RQ10SOPA528  
 Governer no. : 0 421 801 128

Customer-spec. information  
 Customer : SAAB-SCANIA

Engine : DS14 41,DSI14 43

**TEST BENCH REQUIREMENTS**

Calibrating-oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Perforated-plate diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant. per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Contr.-rod trav.mm: 9.00...12.00

B02

Cam sequence : 1- 2- 7- 3- 4- 5-  
 6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 1000  
 -----  
 Contr.-rod trav.mm: 12.80...12.90  
 -----  
 Del.quantity cm3/ : 19.9...20.1  
 -----  
 100H.: (19.6...20.4)  
 -----  
 Dispersion cm3/ : 0.6  
 -----  
 100H.: (0.9)

**SLEEVE POSITION**

Control-lever position  
 Degree: 45...47  
 Speed 1/min: 600  
 Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 1000  
 Del.quantity cm3/ : 199.0...201.0  
 1000H.: (196.0...204.0)  
 Dispersion cm3/ : 6.00  
 1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever position degrees: 20...28

**Setting point:**

Speed 1/min : 600  
 Contr.-rod trav.mm: 16.5

**Testing:**

1st c-rod trav.mm : 11.80  
 Speed 1/min : 1050...1055  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1098...1113  
 4th speed 1/min : 1150  
 C-rod trav.mm : 0.00...1.00

**ROTATIONAL-SPEED LIMITATION**

1st version

1mm control-rod travel less than

full-load trav.mm: 11.80  
Speed 1/min : 1050...1055

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### HIGH IDLE

Contr.-rod trav.mm: 4.90...5.10  
Dispersion cm<sup>3</sup>/ : 4.00  
1000H.: (7.00)

#### Remarks:

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-06-04

Start of delivery - engine:

DS 14 - 18° before TDC

DSI 14 - 17° before TDC

Engine firing sequence: 1-5-4-2-6-3-7-8

#### APPLICATION

Generator set

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 D  
Edition : 26.8.87  
Superceeded : 9.86  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 802  
Injection pump  
Pump designation : PE8P120A920/4LS7008  
EP type number : 0 412 628 803  
Governor  
Governor design. : RQV200...950PA547-1  
Governor no. : 0 421 813 360

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 01

## TEST BENCH REQUIREMENTS

Calibrating-pil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4,50...4,60  
                  : (4,45...4,65)  
Contr.-rod trav.mm: 6,00...8,00

Cam sequence : 1-2-7-3-4-5-6-8

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0,50 (0,75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7,00...13,90  
& c-rod tray max. : 21,00  
Difference ° CS : 1,45...2,15

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13,90...14,00

Del.quantity cm3/ : 19,7...19,9

100H.: (19,4...20,2)

Dispersion cm3/ : 0,7

100H.: (1,0)

2nd speed 1/min: 225

Contr.-rod trav. m: 4,70...4,90

Del.quantity cm3/ : 1,4...1,8

100H.: (-)

Dispersion cm3/ : 0,3

100H.: (0,6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1,30...1,50

2nd speed 1/min: 270

Sleeve travel mm: 1,90...2,10

3rd speed 1/min: 360

Sleeve travel mm: 2,60...3,00

4th speed 1/min: 990

Sleeve travel mm: 7,80...8,00

5th speed 1/min: 1120

Sleeve travel mm: 9,40...9,60

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Contr.-rod travelmm: 15,20...17,80

FULL-LOAD DELIV. AT FULL-LOAD STOP



1st version  
Speed 1/min: 700  
Charge press. hPa : 900  
Del. quantity cm3/ : 197,0...199,0  
1000H.: (194,0...202,0)  
Dispersion cm3/ : 7,0  
1000H.: 10,0

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 56...64

#### Testing:

1st c-rod trav.mm : 12,90  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1110...1140  
4th speed 1/min : 1250  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6,20  
Speed 1/min : 225  
C-rod trav.mm : 4,70...4,90  
C-rod trav.mm : 2,00  
Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13,90...14,00

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11,00...11,10  
2nd pressure hPa : 335  
C-rod trav.mm : 13,10...13,20  
3rd pressure hPa : 215  
C-rod trav.mm : 11,60...11,80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 950  
Del. quantity cm3/ : 190,0...198,0  
1000H.: (188,0...200,0)

Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 146,0...150,0  
1000H.: (144,0...152,0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than

full-load trav.mm: 12,90  
Speed 1/min : 990...1000

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 240,0...290,0  
1000H.: (-)  
Contr.-rod trav.mm: 20,00...21,00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4,70...4,90  
Del. quantity cm3/ : 14,0...18,0  
1000H.: (-)  
Dispersion cm3/ : 3,0  
1000H.: 6,0

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without RO80 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-06-09  
Start of delivery - engine: 22° before  
TDC at control-rod travel = 6.0...  
8.0 mm  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 D1  
Edition : 27.8.87  
Superceeded : 9.86  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 811  
Injection pump  
Pump designation : PE8P120A920/4LS7008  
EP type number : 0 412 628 803  
Governor  
Governor design. : RQV275...950PA547-4  
Governor no. : 0 421 813 435

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4,50...4,60  
                  : (4,45...4,65)  
Contr.-rod trav.mm: 6,00...8,00

807

Cam sequence : 1-2-7-3-4-5-6-8

SD ang. spacing°CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - ° : 0,50 (0,75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7,00...13,90  
& c-rod tray max. : 21,00  
Difference ° CS : 1,45...2,15

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 13,90...14,00  
-----  
Del.quantity cm3/ : 19,7...19,9  
-----  
100H.: (19,4...20,2)  
-----  
Dispersion cm3/ : 0,7  
-----  
100H.: (1,0)  
-----  
2nd speed 1/min: 275  
Contr.-rod trav. m: 4,70...4,90  
Dispersion cm3/ : 0,3  
100H.: (0,6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 275  
Sleeve travel mm: 1,90...2,10  
2nd speed 1/min: 430  
Sleeve travel mm: 3,70...4,00  
3rd speed 1/min: 500  
Sleeve travel mm: 4,80...5,00  
4th speed 1/min: 1000  
Sleeve travel mm: 7,60...7,80  
5th speed 1/min: 1180  
Sleeve travel mm: 9,20...9,40

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1100  
Contr.-rod travelmm: 15,20...17,80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700

Charge press. hPa : 900  
Del. quantity cm<sup>3</sup>/ : 197,0...199,0  
1000H.: (194,0...202,0)  
Dispersion cm<sup>3</sup>/ : 7,0  
1000H.: (10,0)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 55...63

#### Testing:

1st c-rod trav.mm : 12,90  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1170...1200  
4th speed 1/min : 1300  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6,20  
Speed 1/min : 275  
C-rod trav.mm : 4,70...4,90  
C-rod trav.mm : 2,00  
Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13,90...14,00

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11,00...11,10  
2nd pressure hPa : 335  
C-rod trav.mm : 13,10...13,20  
3rd pressure hPa : 215  
C-rod trav.mm : 11,60...11,80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 900  
Speed 1/min : 950  
Del. quantity cm<sup>3</sup>/ : 190,0...198,0  
1000H.: (188,0...200,0)  
Speed 1/min : 500

Del. quantity cm<sup>3</sup>/ : 146,0...150,0  
1000H.: (144,0...152,0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than

full-load trav.mm: 12,90  
Speed 1/min : 990...1000

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 240,0...290,0  
1000H.: (-)  
Contr.-rod trav.mm: 20,00...21,00

#### LOW IDLE

Speed 1/min : 275  
Contr.-rod trav.mm: 4,70...4,90  
Dispersion cm<sup>3</sup>/ : 3,0  
1000H.: (6,0)

Delivery-valve spring pre-tension  
3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-06-09  
Start of delivery - engine: 22° before

TDC at control-rod travel = 6.0...  
8.0 mm  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A1  
Edition : 02.06.87  
Superceeded : 11.86  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 648 812  
  
Injection pump  
Pump designation : PEBP120A32OLS7801  
EP type number : 0 412 628 806  
Governor  
Governor design. : RQ300/1050PA717  
Governor no. : 0 421 801 258

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.80...15.00

Del.quantity cm3/ : 21.6...21.8

100H.: (21.3...22.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300

Contr.-rod trav. m: 6.10...6.70

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 2.80...3.00

2nd speed 1/min: 600

Sleeve travel mm: 6.00...6.10

3rd speed 1/min: 900

Sleeve travel mm: 6.10...6.20

4th speed 1/min: 1000

Sleeve travel mm: 6.20...6.30

5th speed 1/min: 1150

Sleeve travel mm: 9.30...9.60

## SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 600  
Charge press. hPa : 680  
Del. quantity cm3/ : 216.0...218.0  
1000H.: (213.0...221.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 36...44

#### Setting point:

Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

#### Testing:

1st c-rod trav.mm : 14.70  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1160...1190  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...17  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.4

#### Testing:

Speed 1/min : 200  
C-rod trav.mm min : 8.00  
Speed 1/min : 300  
C-rod trav.mm : 6.40  
C-rod trav.mm : 2.00  
Speed 1/min : 380...420

#### TORQUE CONTROL

Dimension a mm : 0.35  
2nd speed 1/min : 1050  
C-rod trav.mm : 15.60...15.80  
3rd speed 1/min : 850  
C-rod trav.mm : 16.00...16.20

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 680  
Contr.-rod trav.mm: 14.80...15.00

#### Measurement

Speed 1/min : 600

1st pressure hPa : 310  
C-rod trav.mm : 12.20...12.40  
2nd pressure hPa : 470  
C-rod trav.mm : 13.80...14.00  
3rd pressure hPa : 820  
C-rod trav.mm : 15.00...15.10  
4th pressure hPa : 1100  
C-rod trav.mm : 16.00...16.10  
5th pressure hPa : -  
C-rod trav.mm : 11.60...11.70

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 1150  
Speed 1/min : 1050  
Del. quantity cm3/ : 232.0...235.0  
1000H.: (229.0...238.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : 1150  
Speed 1/min : 850  
Del. quantity cm3/ : 247.0...251.0  
1000H.: (244.0...254.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than  
full-load trav.mm: 14.70  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 200.0...220.0  
1000H.: (196.0...224.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,0 G  
Edition : 09.03.87  
Superceeded : 1.86  
Calibrating oil : ISO-4113

Combination no. : 0 402 648 813

Injection pump  
Pump designation : PE8P120A920/4LS7108  
EP type number : 0 412 628 807  
Governor  
Governor design. : RQV200...950PA736  
Governor no. : 0 421 813 467

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
: (4.45...4.65)

Contr.-rod trav.mm: 6.00...8.00



Cam sequence : 1- 2- 7- 3- 4- 5-  
6- 8

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
270-315

Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

#### START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7.00...13.90

& c-rod trav max. : 21.00

Difference <sup>o</sup> CS : 1.45...2.15

#### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm3/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm3/ : 0.7

100H.: (1.0)

2nd speed 1/min: 225

Contr.-rod trav. m: 4.60...4.80

Del.quantity cm3/ : 1.4...1.8

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.50

2nd speed 1/min: 270

Sleeve travel mm: 1.80...2.10

3rd speed 1/min: 360

Sleeve travel mm: 2.60...3.00

4th speed 1/min: 990

Sleeve travel mm: 7.80...8.00

5th speed 1/min: 1120

Sleeve travel mm: 9.40...9.70

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1050

Contr.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 197.0...199.0

1000H.: (194.0...202.0)

Dispersion cm3/ : 7.00

1000H.: (10.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 56...64

Testing:

1st c-rod trav.mm : 12.90

Speed 1/min : 990...1000

2nd c-rod trav.mm : 4.00

Speed 1/min : 1110...1140

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.20

Speed 1/min : 225

C-rod trav.mm : 4.70...4.90

C-rod trav.mm : 2.00

Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 13.90...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 11.00...11.10

2nd pressure hPa : 335

C-rod trav.mm : 13.20...13.30

3rd pressure hPa : 215

C-rod trav.mm : 11.60...11.80

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 950

Del. quantity cm<sup>3</sup>/ : 190.0...198.0  
1000H.: (188.0...200.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 146.0...150.0  
1000H.: (144.0...152.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 12.90  
Speed 1/min : 990...1000

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.70...4.90

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania

on 1985-02-11  
Start of delivery - engine: 22° before  
TDC at control-rod travel = 6.0...  
8.0 mm  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 28,8 A  
Edition : 09.03.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 648 814  
  
Injection pump  
Pump designation : PE8P120A500/SRS7109  
EP type number : 0 412 628 809  
Governor  
Governor design. : RQV300...1150PA7S6  
Governor no. : 0 421 813 486

Customer-spec. information  
Customer : MWM

Engine : TBD234V16

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025  
  
Inlet press., bar : 1.50  
  
Calibrating nozzle-holder  
assembly : 1 688 901 019  
  
Opening  
pressure, bar : 207...210  
  
Perforated-plate  
diameter mm : 0.8  
  
Test inj. tubing : 1 680 750 067  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
  
Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 3- 4- 7- 8-  
                  5- 6

SD ang. spacing°CS: 0-30-90-120-225-255-  
                                  315-345  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 14.90...15.00  
-----  
Del.quantity cm3/ : 26.0...26.2  
                  100H.: (25.7...26.5)  
-----  
Dispersion cm3/ : 0.5  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 300  
Contr.-rod trav. m: 6.50...6.70  
Del.quantity cm3/ : 3.0...4.0  
                  100H.: (2.7...4.3)  
Dispersion cm3/ : 0.6  
                  100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.30...1.40  
2nd speed 1/min: 360  
Sleeve travel mm: 1.60...2.10  
3rd speed 1/min: 560  
Sleeve travel mm: 2.50...2.90  
4th speed 1/min: 1190  
Sleeve travel mm: 8.30...8.40  
5th speed 1/min: 1280  
Sleeve travel mm: 9.60...9.90

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1200  
Cont.-rod travelmm: 15.20...17.80

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 52...60

## Testing:

1st c-rod trav.mm : 13.90  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00

Speed 1/min : 1270...1300  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

Pump runs in tandem

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 14...22

APPLICATION  
Ship

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.00  
Speed 1/min : 300  
C-rod trav.mm : 6.50...6.70

#### CONSTANT REGULATION

Speed 1/min : 300...580

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 14.90...15.00

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.30...9.50  
2nd pressure hPa : 625  
C-rod trav.mm : 14.70...14.80  
3rd pressure hPa : 250  
C-rod trav.mm : 11.30...11.50

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 13.90  
Speed 1/min : 1190...1200

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...240.0  
1000H.: (-)

#### Remarks:

Full-load delivery not known. Set  
according to engine test report.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,2 D2  
Edition : 26.8.87  
Superceeded : 9.86  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 815  
Injection pump  
Pump designation : PEBP120A920/4LS7008X  
EP type number : 0 412 628 812  
Governor  
Governor design. : RQV20C...950PAS47-6  
Governor no. : 0 421 813 499

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 02

## TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Perforated-plate diameter mm : 0,8

Test inj. tubing : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant. per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4,50...4,60  
                  : (4,45...4,65)  
Contr.-rod trav.mm: 6,00...8,00

Cam sequence : 1-2-7-3-4-5-6-8

SD ang. spacing°CS: 0-45-90-135-180-225-270-315  
Tolerance + - ° : 0,50 (0,75)

SD mark cyl. no. : 1

## START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7,00...12,80  
& c-rod tray max. : 21,00  
Difference ° CS : 1,05...1,75

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 12,80...12,90  
-----  
Del.quantity cm3/ : 18,3...18,5  
-----  
100H.: (18,0...18,8)  
-----  
Dispersion cm3/ : 0,7  
-----  
100H.: (1,0)  
-----  
2nd speed 1/min: 225  
Contr.-rod trav. m: 4,70...4,90  
Del.quantity cm3/ : 1,4...1,8  
100H.: (-)  
Dispersion cm3/ : 0,3  
100H.: (0,6)

(B) Setting of injection pump with externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 225  
Sleeve travel mm: 1,30...1,40  
2nd speed 1/min: 260  
Sleeve travel mm: 1,70...1,90  
3rd speed 1/min: 360  
Sleeve travel mm: 2,60...3,00  
4th speed 1/min: 1000  
Sleeve travel mm: 7,90...9,00  
5th speed 1/min: 1110  
Sleeve travel mm: 9,30...9,50

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1040  
Cont.-rod travelmm: 15,20...17,80

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700  
Charge press. hPa : 900  
Del. quantity cm3/ : 183,0...185,0  
1000H.: (180,0...188,0)  
Dispersion cm3/ : 7,0  
1000H.: (10,0)

HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 55...63

Testing:

1st c-rod trav.mm : 11,80  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1090...1120  
4th speed 1/min : 1250  
C-rod trav.mm : 0,00...1,00

LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6,20  
Speed 1/min : 225  
C-rod trav.mm : 4,70...4,90  
C-rod trav.mm : 2,00  
Speed 1/min : 330...390

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 12,80...12,90

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11,00...11,10

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900  
Speed 1/min : 950  
Del. quantity cm3/ : 177,0...185,0  
1000H.: (175,0...187,0)  
Speed 1/min : 500  
Del. quantity cm3/ : 146,0...150,0  
1000H.: (144,0...152,0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than  
full-load trav.mm: 11,80  
Speed 1/min : 990...1000

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 240,0...290,0  
1000H.: (-)  
Contr.-rod trav.mm: 20,00...21,00

LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4,70...4,90  
Del. quantity cm3/ : 14,0...18,0  
1000H.: (-)  
Dispersion cm3/ : 3,0  
1000H.: (6,0)

Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

ADDITIONAL INFORMATION

Check and set without RO80 diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over  
on May 3, 1985  
Start of delivery - engine: 22° before

TDC at control-rod travel = 6.0...  
8.0 mm  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A4  
Edition : 14.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 648 817  
  
Injection pump  
Pump designation : PE8P120A320LS7801  
EP type number : 0 412 628 806  
Governor  
Governor design. : RQ300/1050PA762-5  
Governor no. : 0 421 801 399

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 260.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>0</sup>CS: 0-45-90-135-180-225-  
  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm<sup>3</sup>/ : 19.6...19.8

100H.: (19.3...20.1)

Dispersion cm<sup>3</sup>/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.2...6.6

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm<sup>3</sup>/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 2.20...2.40

2nd speed 1/min: 600

Sleeve travel mm: 5.90...6.10

3rd speed 1/min: 870

Sleeve travel mm: 6.10...6.30

4th speed 1/min: 1050

Sleeve travel mm: 6.70...6.90

5th speed 1/min: 1170

Sleeve travel mm: 9.20...9.80

## SLEEVE POSITION

Control-lever position

Degree: 108...110

Speed 1/min: 600

Cont.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP



1st version  
Speed 1/min: 600  
Charge press. hPa : 650  
Del. quantity cm<sup>3</sup>/ : 196.0...198.0  
1000H.: (193.0...201.0)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 36...44

#### Setting point:

Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

#### Testing:

1st c-rod trav.mm : 11.80  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1170...1200  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.3

#### Testing:

Speed 1/min : 200  
C-rod trav.mm min : 8.00  
Speed 1/min : 300  
C-rod trav.mm : 6.30  
C-rod trav.mm : 2.00  
Speed 1/min : 380...420

#### TORQUE CONTROL

Dimension a mm : 0.75  
2nd speed 1/min : 1050  
C-rod trav.mm : 12.60...12.80  
3rd speed 1/min : 850  
C-rod trav.mm : 13.70...13.90  
4th speed 1/min : 700  
C-rod trav.mm : 14.20...14.50

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 650  
Contr.-rod trav.mm: 13.90...14.00

#### Measurement

Speed 1/min : 600

1st pressure hPa : 300  
C-rod trav.mm : 12.20...12.40  
2nd pressure hPa : 400  
C-rod trav.mm : 13.20...13.50  
3rd pressure hPa : 850  
C-rod trav.mm : 14.00...14.10  
4th pressure hPa : -  
C-rod trav.mm : 11.50...11.60

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 1050  
Speed 1/min : 1050  
Del. quantity cm<sup>3</sup>/ : 175.0...178.0  
1000H.: (172.0...181.0)  
Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : 1050  
Speed 1/min : 700  
Del. quantity cm<sup>3</sup>/ : 209.0...213.0  
1000H.: (206.0...216.0)  
Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : 1050  
Speed 1/min : 850  
Del. quantity cm<sup>3</sup>/ : 203.0...207.0  
1000H.: (200.0...210.0)  
Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than  
full-load trav.mm: 11.80  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 175.0...190.0  
1000H.: (171.0...194.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,0 G1  
Edition : 14.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 822  
Injection pump  
Pump designation : PE8P120A920/4LS7108  
EP type number : 0 412 628 807  
Governor  
Governor design. : RQV275...950PA736-2  
Governor no. : 0 421 813 616

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 01

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
                  : (4.45...4.65)

Contr.-rod trav.mm: 6.00...8.00

Cam sequence : 1- 2- 7- 3- 4- 5-  
6- 8

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

### START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 7.00...14.20  
& c-rod trav max. : 21.00  
Difference <sup>o</sup> CS : 1.65...2.35

### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm3/ : 19.7...19.9  
100H.: (19.4...20.2)

Dispersion cm3/ : 0.7  
100H.: (1.0)

2nd speed 1/min: 275.0  
Contr.-rod trav. m: 4.6...4.8  
Del.quantity cm3/ : 1.4...1.8  
100H.: (-)  
Dispersion cm3/ : 0.3  
100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

### SLEEVE TRAVELS

1st speed 1/min: 275  
Sleeve travel mm: 1.40...1.50  
2nd speed 1/min: 350  
Sleeve travel mm: 2.50...2.90  
3rd speed 1/min: 550  
Sleeve travel mm: 5.00...5.30  
4th speed 1/min: 990  
Sleeve travel mm: 7.60...7.80  
5th speed 1/min: 1100  
Sleeve travel mm: 8.50...8.80

### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1080  
Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

### 1st version

Speed 1/min: 700  
Charge press. hPa : 900  
Del.quantity cm3/ : 197.0...199.0  
1000H.: (194.0...202.0)  
Dispersion cm3/ : 7.00  
1000H.: (10.00)

### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 55...63

### Testing:

1st c-rod trav.mm : 12.90  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1165...1195  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

### LOWEST RATED SPEED I

Control-lever  
position degrees: 6...14

### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 5.90  
Speed 1/min : 275  
C-rod trav.mm : 4.40...4.60  
C-rod trav.mm : 2.00  
Speed 1/min : 320...380

compensator (LDA,ADA,ALDA)

### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.90...14.00

### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 11.00...11.10  
2nd pressure hPa : 335  
C-rod trav.mm : 13.10...13.20  
3rd pressure hPa : 215  
C-rod trav.mm : 11.60...11.80

### FUEL-DELIVERY CHARACTERISTICS

### 1st version

Charge press. hPa : 900  
Speed 1/min : 950

Del. quantity cm<sup>3</sup>/ : 190.0...198.0  
1000H.: (188.0...200.0)  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 146.0...150.0  
1000H.: (144.0...152.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 12.90  
Speed 1/min : 990...1000

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 275  
Contr.-rod trav.mm: 4.40...4.60

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

22° before top dead center with  
control-rod travel 6.0...8.0 mm.

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 14.4 B  
Edition : 09.03.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 823  
Injection pump  
Pump designation : PE8P120A520/SRS7115  
EP type number : 0 412 628 813  
Governor  
Governor design. : RQV300...1150PA756  
Governor no. : 0 421 813 486

Customer-spec. information  
Customer : MWM

Engine : TBD234V8

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00

B25

Cam sequence : 1- 8- 5- 4- 7- 2-  
                  3- 6

SD ang. spacing°CS: 0-30-90-120-180-210-  
                                  270-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 14.90...15.00  
-----  
Del.quantity cm3/ : 26.0...26.2  
-----  
                  100H.: (25.7...26.5)  
-----  
Dispersion cm3/ : 0.5  
-----  
                  100H.: (0.9)

2nd speed 1/min: 300  
Contr.-rod trav. m: 6.20...6.40  
Del.quantity cm3/ : 3.0...4.0  
                  100H.: (-)  
Dispersion cm3/ : 0.6  
                  100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.30...1.40  
2nd speed 1/min: 350  
Sleeve travel mm: 1.60...2.00  
3rd speed 1/min: 560  
Sleeve travel mm: 2.50...2.90  
4th speed 1/min: 1190  
Sleeve travel mm: 8.30...8.40  
5th speed 1/min: 1280  
Sleeve travel mm: 9.50...9.90

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1200  
Contr.-rod travelmm: 15.20...17.80

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 52...60

## Testing:

1st c-rod trav.mm : 13.90  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00

Speed 1/min : 1270...1300  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

APPLICATION  
Installation 2300

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 14...22

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.00  
Speed 1/min : 300  
C-rod trav.mm : 6.50...6.70

#### CONSTANT REGULATION

Speed 1/min : 300...580

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 14.90...15.00

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.30...9.50  
2nd pressure hPa : 625  
C-rod trav.mm : 14.70...14.80  
3rd pressure hPa : 250  
C-rod trav.mm : 11.30...11.50

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 13.90  
Speed 1/min : 1190...1200

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...240.0  
1000H.: (196.0...244.0)

#### Remarks:

Full-load delivery not known. Set  
according to engine test report.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 B  
Edition : 14.11.86  
Superceeded : 2.86  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 648 824  
  
Injection pump  
Pump designation : PE8P120A32OLS7801  
EP type number : 0 412 628 806  
Governor  
Governor design. : RQV300..10SOPA797  
Governor no. : 0 421 813 532

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>0</sup>CS: 0-45-90-135-180-225-  
  270-315  
Tolerance + - <sup>0</sup> : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.80...15.00

Del.quantity cm3/ : 21.6...21.8  
  100H.: (21.3...22.1)

Dispersion cm3/ : 0.5  
  100H.: (0.9)

2nd speed 1/min: 300  
Contr.-rod trav. m: 6.20...6.60  
Del.quantity cm3/ : 1.6...2.2  
  100H.: (1.3...2.5)  
Dispersion cm3/ : 0.6  
  100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.20...1.40  
2nd speed 1/min: 600  
Sleeve travel mm: 4.90...5.10  
3rd speed 1/min: 1075  
Sleeve travel mm: 7.40...7.60  
4th speed 1/min: 1100  
Sleeve travel mm: 8.00...8.20  
5th speed 1/min: 1150  
Sleeve travel mm: 9.00...9.20

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1090  
Contr.-rod travelmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 600  
Charge press. hPa : 680  
Del. quantity cm3/ : 216.0...218.0  
1000H.: (213.0...221.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

#### Testing:

1st c-rod trav.mm : 14.70  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1160...1190  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 15...23

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.90  
Speed 1/min : 300  
C-rod trav.mm : 6.20...6.40

#### CONSTANT REGULATION

Speed 1/min : 300...500

#### TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed 1/min : 1050  
C-rod trav.mm : 15.60...16.00  
3rd speed 1/min : 850  
C-rod trav.mm : 16.00...16.20

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 680  
Contr.-rod trav.mm: 14.80...25.00

#### Measurement

Speed 1/min : 600  
1st pressure hPa : 310  
C-rod trav.mm : 12.20...12.40  
2nd pressure hPa : 470  
C-rod trav.mm : 13.80...14.00  
3rd pressure hPa : 820  
C-rod trav.mm : 15.00...15.10

4th pressure hPa : 1100  
C-rod trav.mm : 16.00...16.10  
5th pressure hPa : 150  
C-rod trav.mm : 11.50...11.70

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 1150  
Speed 1/min : 1050  
Del. quantity cm3/ : 232.0...235.0  
1000H.: (229.0...238.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : 1150  
Speed 1/min : 850  
Del. quantity cm3/ : 247.0...251.0  
1000H.: (244.0...254.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than  
full-load trav.mm: 14.70  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 200.0...220.0  
1000H.: (196.0...224.0)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A5  
Edition : 14.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 648 825

Injection pump  
Pump designation : PE8P120A320LS7801  
EP type number : 0 412 628 806  
Governor  
Governor design. : RQV300..1050PA797-3  
Governor no. : 0 421 813 627

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 260,0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                          270-315  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 8

**BASIC SETTING**

1st speed 1/mi: 600  
-----  
Contr.-rod trav.mm: 13.90...14.00  
-----  
Del.quantity cm3/ : 19.6...19.8  
                  100H.: (19.3...20.1)  
-----  
Dispersion cm3/ : 0.5  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.2...6.6  
Del.quantity cm3/ : 1.6...2.2  
                  100H.: (1.3...2.5)  
Dispersion cm3/ : 0.6  
                  100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300  
Sleeve travel mm: 1.20...1.40  
2nd speed 1/min: 600  
Sleeve travel mm: 4.90...5.10  
3rd speed 1/min: 1075  
Sleeve travel mm: 7.40...7.60  
4th speed 1/min: 1100  
Sleeve travel mm: 8.00...8.20  
5th speed 1/min: 1150  
Sleeve travel mm: 9.00...9.20

**SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed 1/min: 1090  
Contr.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

CO2

**1st version**

Speed 1/min: 600  
Charge press. hPa : 650  
Del.quantity cm3/ : 196.0...198.0  
                  1000H.: (193.0...201.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 115...122

**Testing:**

1st c-rod trav.mm : 11.80  
Speed 1/min : 1090...1100  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1170...1200  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 80...88

**Testing:**

Speed 1/min : 100  
C-rod trav.mm min : 7.70  
Speed 1/min : 300  
C-rod trav.mm : 6.20...6.40

**CONSTANT REGULATION**

Speed 1/min : 300...450

**TORQUE CONTROL**

Dimension a mm : 1.40  
2nd speed 1/min : 1050  
C-rod trav.mm : 12.60...12.80  
3rd speed 1/min : 850  
C-rod trav.mm : 13.70...13.90  
4th speed 1/min : 700  
C-rod trav.mm : 14.20...14.40

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
Speed 1/min : 600  
Pressure hPa : 650  
Contr.-rod trav.mm: 13.90...14.00

**Measurement**

Speed 1/min : 600  
1st pressure hPa : 300  
C-rod trav.mm : 12.20...12.40  
2nd pressure hPa : 400  
C-rod trav.mm : 13.20...13.50

3rd pressure hPa : 850  
C-rod trav.mm : 14.00...14.10  
4th pressure hPa : -  
C-rod trav.mm : 11.50...11.60

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 1050  
Speed 1/min : 1050  
Del.quantity cm3/ : 175.0...179.0  
1000H.: (172.0...182.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1050  
Speed 1/min : 700  
Del.quantity cm3/ : 209.0...213.0  
1000H.: (206.0...216.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1050  
Speed 1/min : 850  
Del.quantity cm3/ : 203.0...207.0  
1000H.: (200.0...210.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : ?  
1000H.: ?

Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 11.80  
Speed 1/min : 1090...1100

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 175.0...190.0  
1000H.: (171.0...194.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 14,0 H  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 648 826

Injection pump  
Pump designation : PE8P120A920/4LS7125S  
EP type number : 0 412 628 815  
Governor  
Governor design. : RQV200...950PA736-1  
Governor no. : 0 421 813 551

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSC14 05

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
: (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 2- 7- 3- 4- 5-  
6- 8

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
270-315  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 13.30...13.40

Del.quantity cm3/ : 20.9...21.1

100H.: (20.6...21.4)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 225

Contr.-rod trav. m: 5.10...5.30

Del.quantity cm3/ : 1.6...2.0

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 225

Sleeve travel mm: 1.30...1.40

2nd speed 1/min: 330

Sleeve travel mm: 2.40...2.70

3rd speed 1/min: 420

Sleeve travel mm: 3.10...3.40

4th speed 1/min: 1000

Sleeve travel mm: 7.90...8.10

5th speed 1/min: 1120

Sleeve travel mm: 9.40...9.60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1040

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 209.0...211.0

1000H.: (206.0...214.0)

Dispersion cm3/ : 6.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 54...62

Testing:

1st c-rod trav.mm : 12.30

Speed 1/min : 990...1000

2nd c-rod trav.mm : 4.00

Speed 1/min : 1100...1130

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 6...14

Testing:

Speed 1/min : 100

C-rod trav.mm min : 6.40

Speed 1/min : 225

C-rod trav.mm : 4.90...5.10

C-rod trav.mm : 2.00

Speed 1/min : 340...400

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 900

Contr.-rod trav.mm: 13.30...13.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 11.30...11.40

2nd pressure hPa : 365

C-rod trav.mm : 12.80...12.90

3rd pressure hPa : 215

C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900

Speed 1/min : 950

Del.quantity cm3/ : 199.0...207.0

1000H.: (197.0...209.0)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 158.0...162.0

1000H.: (156.0...164.0)

COS

## ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 12.30  
Speed 1/min : 990...1000

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 225  
Contr.-rod trav.mm: 4.90...5.10

## Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

## ADDITIONAL INFORMATION

Check and set without RO80 diaphragam

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-09-16  
Start of delivery - engine: 16° before  
TDC  
Engine firing sequence: 1-5-4-2-6-3-7-8

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 4,2 B3  
Edition : 09.03.87  
Superceeded : 9.86  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 828  
Injection pump  
Pump designation : PE8P120A920/4LS7003  
EP type number : 0 412 628 801  
Governor  
Governor design. : RQ1020PA528-3  
Governor no. : 0 421 801 348

Customer-spec. information  
Customer : SAAB-SCANIA

Engine : DSI4 44 DSI14 45

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)  
Contr.-rod trav.mm: 9.00...12.00

C07

Cam sequence : 1- 2- 7- 3- 4- 5-  
                  6- 8

SD ang. spacing°CS: 0-45-90-135-180-225-  
                          270-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 970  
-----  
Contr.-rod trav.mm: 12.80...12.90  
-----  
Del.quantity cm3/ : 19.9...20.1  
-----  
                  100H.: (19.6...20.4)  
-----  
Dispersion cm3/ : 0.6  
-----  
                  100H.: (0.9)

## SLEEVE POSITION

Control-lever position  
Degree: 45...47  
Speed 1/min: 600  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 970  
Del.quantity cm3/ : 199.0...201.0  
                  1000H.: (196.0...204.0)  
Dispersion cm3/ : 6.00  
                  1000H.: (9.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 20...28

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 16.5

## Testing:

1st c-rod trav.mm : 11.80  
Speed 1/min : 1020...1025  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1066...1081  
4th speed 1/min : 1120  
C-rod trav.mm : 0.00...1.00

## ROTATIONAL-SPEED LIMITATION

1st version

Imm control-rod travel less than

full-load trav.mm: 11.80  
Speed 1/min : 1020...1025

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...290.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

HIGH IDLE

Contr.-rod trav.mm: 4.90...5.10  
Dispersion cm3/ : 4.00  
1000H.: (7.00)

Remarks:

ADDITIONAL INFORMATION

Check and set without ROBO diaphragm

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on 1986-06-04

Start of delivery - engine:

DS 14 - 18° before TDC

DSI 14 - 17° before TDC

Engine firing sequence: 1-5-4-2-6-3-7-8

APPLICATION

Generator set



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 28,8 A2  
Edition : 02.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 829  
Injection pump  
Pump designation : PE8P120A520/SRS7109  
EP type number : 0 412 628 809  
Governor  
Governor design. : RQV300...1150PA756-2  
Governor no. : 0 421 813 597

Customer-spec. information  
Customer : MWM

Engine : TBD234V16

## TEST BENCH REQUIREMENTS

Calibrating-gil inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Calibrating nozzle-holder assembly : 1 688 901 019  
Opening pressure, bar : 207...210  
Perforated-plate diameter mm : 0.8  
Test inj. tubing : 1 680 750 067  
Outside diameter x Wall thickness x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant. per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00

C09

Cam sequence : 1- 2- 3- 4- 7- 8-  
                  5- 6

SD ang. spacing°CS: 0-30-90-120-225-255-  
                          315-345  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 14.90...15.00  
-----  
Del.quantity cm3/ : 26.0...26.2  
-----  
                  100H.: (25.7...26.5)  
-----  
Dispersion cm3/ : 0.5  
-----  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.5...6.7  
Del.quantity cm3/ : 3.2...3.8  
                  100H.: (2.9...4.1)  
Dispersion cm3/ : 0.6  
                  100H.: (1.0)

(B) Setting of injection pump with externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 1.30...1.40  
2nd speed 1/min: 360  
Sleeve travel mm: 1.60...2.10  
3rd speed 1/min: 560  
Sleeve travel mm: 2.50...2.90  
4th speed 1/min: 1190  
Sleeve travel mm: 8.30...8.40  
5th speed 1/min: 1280  
Sleeve travel mm: 9.60...9.90

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1200  
Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 800  
Charge press. hPa : 900  
Del.quantity cm3/ : 260.0...262.0  
                  1000H.: (257.0...265.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 52...60

#### Testing:

1st c-rod trav.mm : 13.90  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1285...1315  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

### LOWEST RATED SPEED I

Control-lever

position degrees: 14...22

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.00  
Speed 1/min : 300  
C-rod trav.mm : 6.50...6.70

### CONSTANT REGULATION

Speed 1/min : 300...580

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 14.90...15.00

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.30...9.50  
2nd pressure hPa : 625  
C-rod trav.mm : 14.70...14.80  
3rd pressure hPa : 250  
C-rod trav.mm : 11.30...11.50

### SWITCH-OVER POINT

Speed 1/min : 220 (240)

### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900  
Speed 1/min : 1150  
Del.quantity cm3/ : 257.0...263.0  
1000H.: (254.0...266.0)  
Charge press. hPa : -  
Speed 1/min : 500

C10

Del.quantity cm3/ : 128.0...132.0  
1000H.: (126.0...134.0)

### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13.90  
Speed 1/min : 1190...1200

### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.50...6.70  
Del.quantity cm3/ : 32.0...38.0  
1000H.: (29.0...41.0)  
Dispersion cm3/ : 6.00  
1000H.: (10.00)

Remarks:

Pump runs in tandem

Full-load delivery not known. Set according to engine test report.

APPLICATION

Ship

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 E  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 648 831  
Injection pump  
Pump designation : PE8P120A32OLS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQV350..1050PA842-3  
Governor no. : 0 421 813 622

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 LA

1st version kW : 320.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                          270-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.50...14.70

Del.quantity cm3/ : 21.2...21.4  
                  100H.: (20.9...21.7)

Dispersion cm3/ : 0.5  
                  100H.: (0.9)

2nd speed 1/min: 350  
Contr.-rod trav. m: 5.70...5.90  
Del.quantity cm3/ : 1.6...2.2  
                  100H.: (1.3...2.5)  
Dispersion cm3/ : 0.6  
                  100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 350  
Sleeve travel mm: 1.90...2.10  
2nd speed 1/min: 700  
Sleeve travel mm: 4.00...4.40  
3rd speed 1/min: 1100  
Sleeve travel mm: 6.80...7.20  
4th speed 1/min: 1200  
Sleeve travel mm: 8.30...8.70

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1150  
Contr.-rod travelmm: 16.50...18.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600  
Charge press. hPa : 750  
Del. quantity cm3/ : 212.0...214.0  
1000H.: (209.0...217.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 58...66

#### Testing:

1st c-rod trav.mm : 14.20  
Speed 1/min : 1090...1100  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1175...1205  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.40  
Speed 1/min : 350  
C-rod trav.mm : 5.70...5.90

#### CONSTANT REGULATION

Speed 1/min : 350...550

#### TORQUE CONTROL

2nd speed 1/min : 1050  
C-rod trav.mm : 15.20...15.40  
3rd speed 1/min : 975  
C-rod trav.mm : 15.40...15.60

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 750  
Contr.-rod trav.mm: 14.50...14.70

#### Measurement

Speed 1/min : 600  
1st pressure hPa : 400  
C-rod trav.mm : 12.20...12.40  
2nd pressure hPa : 550  
C-rod trav.mm : 13.60...13.80  
3rd pressure hPa : 900  
C-rod trav.mm : 14.70...14.80  
4th pressure hPa : 1250  
C-rod trav.mm : 15.50...15.70  
5th pressure hPa : 150

C-rod trav.mm : 11.20...11.40

#### SWITCH-OVER POINT

Speed 1/min : 270 (290)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 1250  
Speed 1/min : 1050  
Del. quantity cm3/ : 227.0...230.0  
1000H.: (224.0...233.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1250  
Speed 1/min : 900  
Del. quantity cm3/ : 238.0...242.0  
1000H.: (235.0...245.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1250  
Speed 1/min : 1050  
Del. quantity cm3/ : 156.0...159.0  
1000H.: (153.0...162.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 150.0...152.0  
1000H.: (147.0...155.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than

full-load trav.mm: 14.20  
Speed 1/min : 1090...1100

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 240.0...260.0  
1000H.: (236.0...264.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A 6  
Edition : 15.05.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 648 833

Injection pump  
Pump designation : PE8P120A320LS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQV300..10SOPA866  
Governor no. : 0 421 813 628

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 260.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
                          270-315

Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 8

**BASIC SETTING**

1st speed 1/mi: 1050  
-----

Contr.-rod trav.mm: 12.80...12.90  
-----

Del.quantity cm3/ : 18.1...18.3  
-----

100H.: (17.8...18.6)  
-----

Dispersion cm3/ : 0.5  
-----

100H.: (0.9)  
-----

2nd speed 1/min: 350.0  
-----

Contr.-rod trav. m: 5.6...6.0  
-----

Del.quantity cm3/ : 1.6...2.2  
-----

100H.: (1.3...2.5)  
-----

Dispersion cm3/ : 0.6  
-----

100H.: (1.0)  
-----

(B) Setting of injection pump with  
externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300  
Sleeve travel mm: 1.20...1.40

2nd speed 1/min: 600  
Sleeve travel mm: 4.90...5.10

3rd speed 1/min: 1100  
Sleeve travel mm: 8.00...8.50

4th speed 1/min: 1170  
Sleeve travel mm: 9.20...9.80

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1090  
Contr.-rod travelmm: 16.50...18.00

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1050  
Charge press. hPa : 1100  
Del.quantity cm3/ : 181.0...183.0  
                  1000H.: (178.0...186.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 59...67

**Testing:**

1st c-rod trav.mm : 11.80  
Speed 1/min : 1090...1100

2nd c-rod trav.mm : 4.00  
Speed 1/min : 1160...1190

4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 10...18

**Testing:**

Speed 1/min : 200  
C-rod trav.mm min : 7.30

Speed 1/min : 350  
C-rod trav.mm : 5.60...5.80

**CONSTANT REGULATION**

Speed 1/min : 300...500

**TORQUE CONTROL**

Torque-control curve - 1st version

1st speed 1/min : 1050  
C-rod trav.mm : 12.80...12.90

2nd speed 1/min : 750  
C-rod trav.mm : 14.40...14.60

3rd speed 1/min : 950  
C-rod trav.mm : 13.50...13.60

4th speed 1/min : 830  
C-rod trav.mm : 14.30...14.50

compensator (LDA, ADA, ALDA)

1st version

Setting  
Speed 1/min : 600  
Pressure hPa : -  
Contr.-rod trav.mm: 11.20...11.50

**Measurement**

Speed 1/min : 600  
1st pressure hPa : 420  
C-rod trav.mm : 11.90...12.10  
2nd pressure hPa : 600  
C-rod trav.mm : 13.60...13.80

## SWITCH-OVER POINT

Speed 1/min : 220 (240)

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1100

Speed 1/min : 700

Del. quantity cm<sup>3</sup>/ : 213.0...217.0

1000H.: (210.0...220.0)

Dispersion cm<sup>3</sup>/ : 8.00

1000H.: (12.0)

Charge press. hPa : 1100

Speed 1/min : 1050

Del. quantity cm<sup>3</sup>/ : 152.0...154.0\*

1000H.: (149.0...157.0)

Dispersion cm<sup>3</sup>/ : 8.00

1000H.: (12.0)

Charge press. hPa : -

Speed 1/min : 500

Del. quantity cm<sup>3</sup>/ : 143.0...145.0

1000H.: (140.0...148.0)

Dispersion cm<sup>3</sup>/ : 8.00

1000H.: (12.0)

## ROTATIONAL-SPEED LIMITATION

1st version

Imm control-rod travel less than

full-load trav. mm: 11.80

Speed 1/min : 1090...1100

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del. quantity cm<sup>3</sup>/ : 180.0...200.0

1000H.: (176.0...204.0)

Remarks:

\* = Set at reduced-delivery stop.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A7  
Edition : 26.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 648 834  
  
Injection pump  
Pump designation : PE8P120A320LS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQV350...900PA866-1  
Governor no. : 0 421 813 629

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : 0M442 A

1st version kW : 267.0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
  270-315  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 880

Contr.-rod trav.mm: 13.80...13.90

Del.quantity cm3/ : 20.3...20.5

100H.: (20.0...20.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.2...6.6

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.6

100H.: (1.0)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 1.20...1.40

2nd speed 1/min: 425

Sleeve travel mm: 2.40...2.60

3rd speed 1/min: 550

Sleeve travel mm: 3.30...3.70

4th speed 1/min: 900

Sleeve travel mm: 8.20...8.60

5th speed 1/min: 975

Sleeve travel mm: 9.70...10.30

## SLEEVE POSITION

Control-lever position

Degree: -1

Cont.-rod travelmm: 16.50...18.00

FULL-LOAD DELIV. AT FULL-LOAD STOP



1st version

Speed 1/min: 880  
Charge press. hPa : 900  
Del. quantity cm3/ : 203.0...205.0  
1000H.: (200.0...208.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 116...124

Testing:

1st c-rod trav.mm : 12.80  
Speed 1/min : 920...930  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 990...1020  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Control-lever  
position degrees: 64...72

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.90  
Speed 1/min : 350  
C-rod trav.mm : 6.20...6.40

CONSTANT REGULATION

Speed 1/min : 300...500

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 880  
C-rod trav.mm : 13.80...13.90  
2nd speed 1/min : 750  
C-rod trav.mm : 14.40...14.60  
3rd speed 1/min : 825  
C-rod trav.mm : 14.00...14.20

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 600  
Pressure hPa : -  
Contr.-rod trav.mm: -

Measurement

Speed 1/min : 600  
1st pressure hPa : 350  
C-rod trav.mm : 1.00...1.20  
2nd pressure hPa : 550  
C-rod trav.mm : 2.60...2.80

SWITCH-OVER POINT

Speed 1/min : 270 (290)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900  
Speed 1/min : 700  
Del. quantity cm3/ : 212.0...216.0  
1000H.: (209.0...219.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 143.0...145.0  
1000H.: (140.0...148.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than  
full-load trav.mm: 12.80  
Speed 1/min : 920...930

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 180.0...200.0  
1000H.: (176.0...204.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 A8  
Edition : 21.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 648 841

Injection pump  
Pump designation : PE8P120A32OLS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RQ300/1050PA762-5  
Governor no. : 0 421 801 399

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442 A

1st version kW : 260.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Contr.-rod trav.mm: 20.00...21.00  
 Cam sequence : 8- 7- 2- 6- 3- 5-  
                   4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

**BASIC SETTING**

1st speed 1/mi: 600  
 -----  
 Contr.-rod trav.mm: 13.80...14.00  
 -----  
 Del.quantity cm3/ : 19.6...19.8  
 -----  
 100H.: (19.3...20.1)  
 -----  
 Dispersion cm3/ : 0.5  
 -----  
 100H.: (0.9)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 6.2...6.6  
 Del.quantity cm3/ : 1.6...2.2  
 100H.: (1.3...2.5)  
 Dispersion cm3/ : 0.6  
 100H.: (1.0)

(B) Setting of injection pump with externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300  
 Sleeve travel mm: 2.20...2.40  
 2nd speed 1/min: 600  
 Sleeve travel mm: 5.90...6.10  
 3rd speed 1/min: 870  
 Sleeve travel mm: 6.10...6.30  
 4th speed 1/min: 1050  
 Sleeve travel mm: 6.70...6.90  
 5th speed 1/min: 1170  
 Sleeve travel mm: 9.20...9.80

**SLEEVE POSITION**

Control-lever position  
 Degree: 108...110  
 Speed 1/min: 600  
 Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

**1st version**

Speed 1/min: 600  
 Charge press. hPa : 650  
 Del.quantity cm3/ : 196.0...198.0  
 1000H.: (193.0...201.0)  
 Dispersion cm3/ : 5.00  
 1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 32...40

**Setting point:**

Speed 1/min : 600  
 Contr.-rod trav.mm: 20.0

**Testing:**

1st c-rod trav.mm : 11.80  
 Speed 1/min : 1095...1110  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1170...1200  
 4th speed 1/min : 1300  
 C-rod trav.mm : 0.00...1.50

**LOWEST RATED SPEED I**

Control-lever  
 position degrees: 10...18  
 Setting point w/out aux. spring  
 Speed 1/min : 300  
 Contr.-rod trav.mm: 6.3

**Testing:**

Speed 1/min : 200  
 C-rod trav.mm min : 8.00  
 Speed 1/min : 300  
 C-rod trav.mm : 6.30  
 C-rod trav.mm : 2.00  
 Speed 1/min : 380...420

**TORQUE CONTROL**

Dimension a mm : 0.75  
 2nd speed 1/min : 1050  
 C-rod trav.mm : 12.80...13.00  
 3rd speed 1/min : 850  
 C-rod trav.mm : 13.90...14.10  
 4th speed 1/min : 700  
 C-rod trav.mm : 14.20...14.50

compensator (LDA, ADA, ALDA)

**1st version**

Setting  
 Speed 1/min : 600  
 Pressure hPa : 650  
 Contr.-rod trav.mm: 13.80...14.00

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
C-rod trav.mm : 12.10...12.30  
2nd pressure hPa : 400  
C-rod trav.mm : 13.10...13.40  
3rd pressure hPa : 850  
C-rod trav.mm : 13.90...14.00

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 1050  
Speed 1/min : 1050  
Del. quantity cm3/ : 178.0...181.0  
1000H.: (175.0...184.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1050  
Speed 1/min : 700  
Del. quantity cm3/ : 209.0...213.0  
1000H.: (206.0...216.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1050  
Speed 1/min : 850  
Del. quantity cm3/ : 206.0...210.0  
1000H.: (203.0...213.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 145.0...147.0  
1000H.: (142.0...150.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 11.80  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 175.0...190.0  
1000H.: (171.0...194.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 L  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 649 800

Injection pump  
Pump designation : PE10P120A320LS7809  
EP type number : 0 412 629 800  
Governor  
Governor design. : RQ300/1050PA856  
Governor no. : 0 421 801 386

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM443 LA

1st version kW : 401.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27  
Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 10- 9- 4- 1- 8- 7  
                  - 6- 3- 5- 2

SD ang. spacing<sup>o</sup>CS: 0-45-72-117-144-189-  
                          216-261-288-333  
Tolerance + - ° : 0.50 (0.75)  
SD mark cyl. no. : 10

#### BASIC SETTING

1st speed 1/mi: 600  
-----  
Contr.-rod trav.mm: 14.70...14.90  
-----  
Del.quantity cm3/ : 21.9...22.1  
-----  
                  100H.: (21.6...22.4)  
-----  
Dispersion cm3/ : 0.5  
-----  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.6...6.8  
Del.quantity cm3/ : 1.6...2.2  
                  100H.: (1.3...2.5)  
Dispersion cm3/ : 0.6  
                  100H.: (1.0)

#### SLEEVE POSITION

Control-lever position  
Degree: 108...110  
Speed 1/min: 600  
Contr.-rod travelmm: 19.20...20.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 600  
Charge press. hPa : 900  
Del.quantity cm3/ : 219.0...221.0  
                  1000H.: (216.0...224.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 36...44

Setting point:

C22

Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 14.10  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1150...1180  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...17  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.7

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.30  
Speed 1/min : 300  
C-rod trav.mm : 6.70  
C-rod trav.mm : 2.00  
Speed 1/min : 380...420

#### TORQUE CONTROL

2nd speed 1/min : 1050  
C-rod trav.mm : 15.10...15.30  
3rd speed 1/min : 800  
C-rod trav.mm : 15.50...15.70

compensator (LDA, ADA, ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 900  
Contr.-rod trav.mm: 14.70...14.90

#### Measurement

Speed 1/min : 600  
1st pressure hPa : 400  
C-rod trav.mm : 12.10...12.30  
2nd pressure hPa : 600  
C-rod trav.mm : 13.60...13.80  
3rd pressure hPa : 960  
C-rod trav.mm : 14.80...14.90  
4th pressure hPa : 1100  
C-rod trav.mm : 15.20...15.40

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1300  
Speed 1/min : 1050  
Del. quantity cm<sup>3</sup>/ : 229.0...232.0  
1000H.: (226.0...235.0)

Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1300  
Speed 1/min : 800  
Del. quantity cm<sup>3</sup>/ : 234.0...238.0  
1000H.: (231.0...241.0)

Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 133.0...135.0  
1000H.: (130.0...138.0)

Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (-)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.10  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 230.0...250.0  
1000H.: (226.0...254.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 L1  
Edition : 27.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 649 801  
Injection pump  
Pump designation : PE10P120A32OLS7809-1  
EP type number : 0 412 629 801  
Governor  
Governor design. : RQ300/1050PA717-1  
Governor no. : 0 421 801 396

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM443 LA

1st version kW : 401.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----



**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 20.00...21.00  
Cam sequence : 10- 9- 4- 1- 8- 7  
                  - 6- 3- 5- 2

SD ang. spacing<sup>o</sup>CS: 0-45-72-117-144-189-  
                          216-261-288-333  
Tolerance + - <sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 10

**BASIC SETTING**

1st speed 1/mi: 600  
-----  
Contr.-rod trav.mm: 14.70...14.90  
-----  
Del.quantity cm3/ : 21.9...22.1  
-----  
                  100H.: (21.6...22.4)  
-----  
Dispersion cm3/ : 0.5  
-----  
                  100H.: (0.9)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.6...6.8  
Del.quantity cm3/ : 1.6...2.2  
                  100H.: (1.3...2.5)  
Dispersion cm3/ : 0.6  
                  100H.: (1.0)

(B) Setting of injection pump with externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300  
Sleeve travel mm: 2.80...3.00  
2nd speed 1/min: 600  
Sleeve travel mm: 6.00...6.20  
3rd speed 1/min: 900  
Sleeve travel mm: 6.10...6.30  
4th speed 1/min: 1000  
Sleeve travel mm: 6.30...6.40  
5th speed 1/min: 1150  
Sleeve travel mm: 9.30...9.70

**SLEEVE POSITION**

Control-lever position  
Degree: 108...110  
Speed 1/min: 600  
Contr.-rod travelmm: 19.20...20.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

**1st version**

Speed 1/min: 600  
Charge press. hPa : 900  
Del.quantity cm3/ : 219.0...221.0  
                  1000H.: (216.0...224.0)  
Dispersion cm3/ : 5.00  
                  1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 36...44

**Setting point:**

Speed 1/min : 600  
Contr.-rod trav.mm: 20.0

**Testing:**

1st c-rod trav.mm : 14.10  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1150...1180  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 9...17  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.7

**Testing:**

Speed 1/min : 100  
C-rod trav.mm min : 8.30  
Speed 1/min : 300  
C-rod trav.mm : 6.70  
C-rod trav.mm : 2.00  
Speed 1/min : 380...420

**TORQUE CONTROL**

2nd speed 1/min : 1050  
C-rod trav.mm : 15.10...15.30  
3rd speed 1/min : 800  
C-rod trav.mm : 15.50...15.70

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
Speed 1/min : 600  
Pressure hPa : 900  
Contr.-rod trav.mm: 14.70...14.90

**Measurement**

Speed 1/min : 600  
1st pressure hPa : 400

C-rod trav.mm : 12.10...12.30  
2nd pressure hPa : 600  
C-rod trav.mm : 13.60...13.80  
3rd pressure hPa : 960  
C-rod trav.mm : 14.80...14.90  
4th pressure hPa : 1100  
C-rod trav.mm : 15.20...15.40

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 1300  
Speed 1/min : 1050  
Del. quantity cm<sup>3</sup>/ : 229.0...232.0  
1000H.: (226.0...235.0)  
Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)

Charge press. hPa : 1300  
Speed 1/min : 800  
Del. quantity cm<sup>3</sup>/ : 234.0...238.0  
1000H.: (231.0...241.0)  
Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)

Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 133.0...135.0  
1000H.: (130.0...138.0)  
Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (-)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 14.10  
Speed 1/min : 1095...1110

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 230.0...250.0  
1000H.: (226.0...254.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 18,3 M  
Edition : 14.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 649 803

Injection pump  
Pump designation : PE10P120A320LS7809-1  
EP type number : 0 412 629 801  
Governor  
Governor design. : RQV300..1050PA797-4  
Governor no. : 0 421 813 654

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM443 LA

1st version kW : 401,0  
Speed 1/min:  $\leq 100$

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 130...150

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm :  $\phi.00 \times 1.50 \times 1000$

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27  
 Prestroke mm : 4.00...4.10  
                   : (3.95...4.15)  
 Contr.-rod trav.mm: 20.00...21.00  
 Cam sequence : 10-9-4-1-8-7-6-3-5-2

SD ang. spacing<sup>o</sup>CS: 0-45-72-117-144-189-  
 216-261-288-333  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 10

**BASIC SETTING**

1st speed 1/mi: 600  
 -----  
 Contr.-rod trav.mm: 14.70...14.90  
 -----  
 Del.quantity cm3/ : 21.9...22.1  
 -----  
                   100H.: (21.6...22.4)  
 -----  
 Dispersion cm3/ : 0.5  
 -----  
                   100H.: (0.9)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 6.6...6.8  
 Del.quantity cm3/ : 1.6...2.2  
                   100H.: (1.3...2.5)  
 Dispersion cm3/ : 0.6  
                   100H.: (1.0)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300  
 Sleeve travel mm: 1.20...1.40  
 2nd speed 1/min: 600  
 Sleeve travel mm: 4.90...5.10  
 3rd speed 1/min: 800  
 Sleeve travel mm: 5.80...6.10  
 4th speed 1/min: 1075  
 Sleeve travel mm: 7.40...7.70  
 5th speed 1/min: 1150  
 Sleeve travel mm: 8.00...8.80

**SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed 1/min: 1100  
 Cont.-rod travelmm: 15.20...17.80

FULL-LOAD DELIV. AT FULL-LOAD STOP

**1st version**

Speed 1/min: 600  
 Charge press. hPa : 900  
 Del.quantity cm3/ : 219.0...221.0  
                   1000H.: (216.0...224.0)  
 Dispersion cm3/ : 5.00  
                   1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 36...44

**Testing:**

1st c-rod trav.mm : 14.10  
 Speed 1/min : 1090...1100  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1155...1185  
 4th speed 1/min : 1300  
 C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
 position degrees: 9...17

**Testing:**

Speed 1/min : 200  
 C-rod trav.m min : 8.60  
 Speed 1/min : 300  
 C-rod trav.mm : 6.60...6.80

**CONSTANT REGULATION**

Speed 1/min : 300...400

**TORQUE CONTROL**

2nd speed 1/min : 1050  
 C-rod trav.mm : 15.10...15.30  
 3rd speed 1/min : 800  
 C-rod trav.mm : 15.50...15.70

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
 Speed 1/min : 600  
 Pressure hPa : 900  
 Contr.-rod trav.mm: 14.70...14.90

**Measurement**

Speed 1/min : 600  
 1st pressure hPa : 400  
 C-rod trav.mm : 12.10...12.30  
 2nd pressure hPa : 600  
 C-rod trav.mm : 13.60...13.80  
 3rd pressure hPa : 960  
 C-rod trav.mm : 14.80...14.90  
 4th pressure hPa : 1100  
 C-rod trav.mm : 15.20...15.40

## SWITCH-OVER POINT

Speed 1/min : 220 (240)

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1300

Speed 1/min : 1050

Del. quantity cm<sup>3</sup>/ : 229.0...232.0

1000H.: (226.0...235.0)

Dispersion cm<sup>3</sup>/ : 8.0

1000H.: (12.0)

Charge press. hPa : 1300

Speed 1/min : 800

Del. quantity cm<sup>3</sup>/ : 234.0...238.0

1000H.: (231.0...241.0)

Dispersion cm<sup>3</sup>/ : 8.0

1000H.: (12.0)

Charge press. hPa : -

Speed 1/min : 500

Del. quantity cm<sup>3</sup>/ : 133.0...135.0

1000H.: (130.0...138.0)

Dispersion cm<sup>3</sup>/ : 8.0

1000H.: (-)

## ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.10

Speed 1/min : 1090...1100

## STARTING FUEL DELIVERY

Speed 1/min : 100

Del. quantity cm<sup>3</sup>/ : 230.0...250.0

1000H.: (226.0...254.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 21,9 Z  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 670 800  
Injection pump  
Pump designation : PE12P120A320LS7805-1  
EP type number : 0 412 620 804  
Governor  
Governor design. : RSV350...750POA82S  
Governor no. : 0 421 833 221

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 389.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 150...170

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 12-1-5-9-8-3-4-11-10  
 -2-6-7

SD ang. spacing<sup>o</sup>CS: 0-45-60-105-120-165-  
180-225-240-285-300-  
345

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 12

**BASIC SETTING**

1st speed 1/mi: 700

Contr.-rod trav.mm: 14.10...14.20

Del.quantity cm<sup>3</sup>/ : 21.0...21.2

100H.: (20.7...21.5)

Dispersion cm<sup>3</sup>/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350

Contr.-rod trav. m: 5.40...5.60

Del.quantity cm<sup>3</sup>/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm<sup>3</sup>/ : 0.8

100H.: (1.2)

**SLEEVE POSITION**

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.40

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 700

Del.quantity cm<sup>3</sup>/ : 210.0...212.0

1000H.: (207.0...215.0)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 21...29

Testing:

D03

1st c-rod trav.mm : 13.10

Speed 1/min : 750...755

2nd c-rod trav.mm : 4.00

Speed 1/min : 780...790

4th speed 1/min : 1000

C-rod trav.mm : 0.30...1.70

**LOWEST RATED SPEED I**

Control-lever

position degrees: 9...17

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 5.5

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 350

C-rod trav.mm : 5.50

**SET IDLE AUXILIARY SPRING**

Contr.-rod trav.mm: 2.00

**FUEL-DELIVERY CHARACTERISTICS**

Speed 1/min : 650

Del.quantity cm<sup>3</sup>/ : 207.0...213.0

1000H.: (204.0...216.0)

Dispersion cm<sup>3</sup>/ : 8.0

1000H.: (12.0)

**ROTATIONAL-SPEED LIMITATION**

1st version

1mm control-rod travel less than

full-load trav.mm: 13.10

Speed 1/min : 750...755

**STARTING FUEL DELIVERY**

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 210.0...230.0

1000H.: (206.0...234.0)

Remarks:

Start-of-delivery mark 11<sup>o</sup> cam angle  
after start of delivery cyl. 1

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 21,9 Y  
 Edition : 09.03.87  
 Superceeded : 12.86  
 Calibrating oil : ISO-4113

Combination no. : 0 402 670 801

Injection pump  
 Pump designation : PE12P120A320LS7807  
 EP type number : 0 412 620 806  
 Governor  
 Governor design. : RSV350...750POA825-1  
 Governor no. : 0 421 833 248

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 444 LA

1st version kW : 407.0  
 Speed 1/min: 1500

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 150...170

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 12-1-5-9-8-3-4-11-10  
 -2-6-7

SD ang. spacing°CS: 0-45-60-105-120-165-  
 180-225-240-285-300-  
 345

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 12

**BASIC SETTING**

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.80...15.90

Del.quantity cm<sup>3</sup>/ : 24.1...24.3

100H.: (23.8...24.6)

Dispersion cm<sup>3</sup>/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350

Contr.-rod trav. m: 5.40...5.60

Del.quantity cm<sup>3</sup>/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm<sup>3</sup>/ : 0.8

100H.: (1.2)

**SLEEVE POSITION**

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.40

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 700

Del.quantity cm<sup>3</sup>/ : 241.0...243.0

1000H.: (238.0...246.0)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 23...31

Testing:



1st c-rod trav.mm : 14.80  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 780...790  
4th speed 1/min : 1000  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...17  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5.5

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 5.50

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 14.80  
Speed 1/min : 750...755

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...260.0  
1000H.: (236.0...264.0)

#### Remarks:

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 21,9 Y1  
Edition : 21.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 402 670 802  
  
Injection pump  
Pump designation : PE12P120A320LS7807  
EP type number : 0 412 620 806  
Governor  
Governor design. : RSV350...750POA825-2  
Governor no. : 0 421 833 250

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 444 A

1st version kW : 360.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 150...170

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 12-1-5-9-8-3-4-11-10  
                  -2-6-7

SD ang. spacing°CS: 0-45-60-105-120-165-  
  180-225-240-285-300-  
  345

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 12

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 14.10...14.20

Del. quantity cm3/ : 21.5...21.7

100H.: (21.2...22.0)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 4.8...5.0

Del. quantity cm3/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.40

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del. quantity cm3/ : 215.0...217.0

1000H.: (212.0...220.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 23...31

Testing:

1st c-rod trav.mm : 13.10  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 780...790  
4th speed 1/min : 1000  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...17  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 4.9

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 4.90

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 218.0...224.0  
1000H.: (215.0...227.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 13.10  
Speed 1/min : 750...755

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 220.0...240.0  
1000H.: (216.0...244.0)

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 4.80...5.00  
Del.quantity cm3/ : 14.0...20.0  
1000H.: (11.0...23.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

#### Remarks:

Observe VDT-I-420/120

0

D07

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 21,9 J1  
 Edition : 21.08.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 670 804  
 Injection pump  
 Pump designation : PE12P120A32OLS7813-1  
 EP type number : 0 412 620 811  
 Governor  
 Governor design. : RSV350...750POA825-5  
 Governer no. : 0 421 833 277

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 441 A

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Overflow  
 quantity min. 1/h: 150...170  
 Calibrating nozzle-holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Perforated-plate  
 diameter mm : 0.8  
 Test inj. tubing : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Contr.-rod trav.mm: 19.00...21.00  
 Cam sequence : 12-1-5-9-8-3-4-11-10  
 -2-6-7

SD ang. spacing<sup>0</sup>CS: 0-45-60-105-120-165-  
 180-225-240-285-300-  
 SD ang. spacing<sup>0</sup>CS: 345  
 Tolerance + -<sup>g</sup> : 0.50 (0.75)

SD mark cyl. no. : 12

**BASIC SETTING**

1st speed 1/mi: 700  
 -----  
 Contr.-rod trav.mm: 15.00...15.10  
 -----  
 Del.quantity cm3/ : 26.7...26.9  
 -----  
 100H.: (26.4...27.2)  
 -----  
 Dispersion cm3/ : 0.5  
 -----  
 100H.: (0.9)  
 -----  
 2nd speed 1/min: 350.0  
 Contr.-rod trav. m: 4.8...5.0  
 Del.quantity cm3/ : 1.4...2.0  
 100H.: (1.1...2.3)  
 Dispersion cm3/ : 0.8  
 100H.: (1.2)

**SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed 1/min: 800  
 Contr.-rod travelmm: 0.30...1.40

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 700  
 Del.quantity cm3/ : 267.0...269.0  
 1000H.: (264.0...272.0)  
 Dispersion cm3/ : 5.00  
 1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 23...31

Testing:  
 1st c-rod trav.mm : 14.00  
 Speed 1/min : 750...755  
 2nd c-rod trav.mm : 4.00

Speed 1/min : 780...790  
4th speed 1/min : 1000  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...17  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 4.9

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 4.90

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 14.00  
Speed 1/min : 750...755

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240.0...260.0  
1000H.: (236.0...264.0)

#### Remarks:

Observe VDT-I-420/120

0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 9,0 I  
Edition : 13.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 676 801  
Injection pump  
Pump designation : PE6P120A32ORS7102  
EP type number : 0 412 626 804  
Governor  
Governor design. : RSV350...1100P1A512  
Governor no. : 0 421 833 196

Customer-spec. information  
Customer : SCANIA

Engine : DS9 40,41

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
                  : (4.95...5.15)

Contr.-rod trav.mm: 9.00...12.00

D10

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 16.3...16.5

100H.: (16.0...16.8)

Dispersion cm3/ : 0.6

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 4.4...4.6

Del.quantity cm3/ : 1.4...1.8

100H.: (-)

Dispersion cm3/ : 0.3

100H.: (0.6)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 6.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 163.0...165.0

1000H.: (160.0...168.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 62...70

Testing:

1st c-rod trav.mm : 11.00

Speed 1/min: 1140...1150

2nd c-rod trav.mm : 4.00

Speed 1/min: 1200...1230

4th speed 1/min: 1360

C-rod trav.mm : 0.30...1.40

### LOWEST RATED SPEED I

Control-lever  
position degrees: 26...34  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 4.0  
Speed 1/min : 350  
C-rod trav.mm : 4.50  
C-rod trav.mm : 2.00  
Speed 1/min : 440...500

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1100  
Del.quantity cm<sup>3</sup>/ : 164.0...172.0  
1000H.: (162.0...174.0)

### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 11.00  
Speed 1/min : 1140...1150

### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...290.0  
1000H.: (240.0...290.0)  
Contr.-rod trav.mm: 20.00...21.00

### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 4.40...4.60  
Del.quantity cm<sup>3</sup>/ : 14.0...18.0  
1000H.: (-)  
Dispersion cm<sup>3</sup>/ : 3.00  
1000H.: (6.00)

### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

### ADDITIONAL INFORMATION

Check and set without ROBO diaphragam

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
1986-12-04

Start of delivery - engine: 15° before  
TDC

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 10,8 B  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 676 802  
Injection pump  
Pump designation : PE6P120A32ORS7124  
EP type number : 0 412 626 813  
Governor  
Governor design. : RSUV300...1150POA355  
Governor no. : 0 421 829 102

Customer-spec. information  
Customer : MWM

Engine : D-TBD 234 V6

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 6- 3- 2- 5- 4

SD ang. spacing<sup>0</sup>CS: 0-90-120-210-240-330  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 800

Contr.-rod trav.mm: 14.90...15.00

Del.quantity cm<sup>3</sup>/ : 26.0...26.2

100H.: (25.7...26.5)

Dispersion cm<sup>3</sup>/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300

Contr.-rod trav. m: 6.50...6.70

Del.quantity cm<sup>3</sup>/ : 3.0...4.0

100H.: (2.7...4.3)

Dispersion cm<sup>3</sup>/ : 0.6

100H.: (1.0)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 4.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 800

Charge press. hPa : 900

Del.quantity cm<sup>3</sup>/ : 260.0...262.0

1000H.: (257.0...265.0)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 59...67

Testing:

1st c-rod trav.mm : 13.90

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1265...1295

4th speed 1/min : 1430

C-rod trav.mm : 0.30...1.70



LOWEST RATED SPEED I

Installation 2300

Control-lever  
position degrees: 17...25  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.1  
Speed 1/min : 300  
C-rod trav.mm : 6.60  
C-rod trav.mm : 2.00  
Speed 1/min : 400...460

compensator (LDA,ADA,ALDA)

1st version  
Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 14.90...15.00

Measurement  
Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 9.30...9.50  
2nd pressure hPa : 625  
C-rod trav.mm : 14.70...14.80  
3rd pressure hPa : 250  
C-rod trav.mm : 11.60...11.80

FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 900  
Speed 1/min : 1150  
Del.quantity cm3/ : 257.0...263.0  
1000H.: (254.0...266.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 128.0...132.0  
1000H.: (126.0...134.0)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 13.90  
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 200.0...240.0  
1000H.: (-)

Remarks:  
APPLICATION

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 12,1 D  
 Edition : 02.06.87  
 Superceeded : 9.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 676 803  
 Injection pump  
 Pump designation : PE6P130A32ORS7113  
 EP type number : 0 412 636 803  
 Governor  
 Governor design. : RSV200...900P4A521  
 Governer no. : 0 421 833 241

Customer-spec. information  
 Customer : VOLVO

Engine : TJD121LP

1st version kW : 310.0  
 Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.80...12.90

Del.quantity cm<sup>3</sup>/ : 27.1...27.4

100H.: (26.8...27.8)

Dispersion cm<sup>3</sup>/ : 0.6

100H.: (1.0)

2nd speed 1/min: 200

Contr.-rod trav. m: 5.00...5.20

Del.quantity cm<sup>3</sup>/ : 2.5...3.0

100H.: (-)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.8)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

Governor-spring reload  
 Notch setting x : 4.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm<sup>3</sup>/ : 271.5...274.5

1000H.: (268.0...278.0)

Dispersion cm<sup>3</sup>/ : 6.00

1000H.: (10.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 98...106

Testing:

1st c-rod trav.mm : 11.80

Speed 1/min : 920...925

2nd c-rod trav.mm : 4.00

Speed 1/min : 945...975  
4th speed 1/min : 1130  
C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 65...73  
Setting point w/out aux. spring  
Speed 1/min : 200  
Contr.-rod trav.mm: 4.6

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 6.50  
Speed 1/min : 200  
C-rod trav.mm : 5.10  
C-rod trav.mm : 2.00  
Speed 1/min : 250...300

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 11.80  
Speed 1/min : 920...925

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 510.0...540.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 G1  
Edition : 1.9.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 678 803  
Injection pump  
Pump designation : PE8P120A32OLS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RSV350...750POA825-3  
Governor no. : 0 421 833 260

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442A

1st version kW : 240.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.10...15.20

Del. quantity cm3/ : 23.3...23.5

100H.: (23.0...23.8)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.2...5.4

Del. quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del. quantity cm3/ : 233.0...235.0

1000H.: (230.0...238.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 74...82

Testing:

1st c-rod trav.mm : 14.10

Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 775...788  
4th speed 1/min : 1400  
C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 60...68  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5.3

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 5.30  
C-rod trav.mm : 2.00  
Speed 1/min : 350...410

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 233.0...239.0  
1000H.: (230.0...242.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 14.10  
Speed 1/min : 750...755

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 230.0...250.0  
1000H.: (226.0...254.0)

#### Remarks:

APPLICATION  
Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 14,7 G2  
Edition : 1.9.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 678 804  
Injection pump  
Pump designation : PE8P120A32OLS7801-1  
EP type number : 0 412 628 818  
Governor  
Governor design. : RSV350...750POA825-4  
Governor no. : 0 421 833 261

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 255.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 8- 7- 2- 6- 3- 5-  
                  4- 1

SD ang. spacing°CS: 0-45-90-135-180-225-  
                  270-315

Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 8

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 15.70...15.80

Del.quantity cm3/ : 24.1...24.3

100H.: (23.8...24.6)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.2...5.4

Del.quantity cm3/ : 1.6...2.2

100H.: (1.3...2.5)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.70

Governor-spring reload

Notch setting x : 2.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 241.0...243.0

1000H.: (238.0...246.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 74...82

Testing:

1st c-rod trav.mm : 14.70  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 775...78850  
4th speed 1/min : 1400  
C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever  
position degrees: 60...68  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5.3

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 5.30  
C-rod trav.mm : 2.00  
Speed 1/min : 350...410

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 246.0...252.0  
1000H.: (243.0...255.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 14.70  
Speed 1/min : 750...755

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 250.0...270.0  
1000H.: (246.0...274.0)

Remarks:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,7 B  
 Edition : 09.03.87  
 Superceeded : 7.85  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 746 804  
 Injection pump  
 Pump designation : PES6P120A72OLS7107  
 EP type number : 0 412 726 801  
 Governor  
 Governor design. : RQ300/1100PA757  
 Governor no. : 0 421 801 294

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : 0M427ha

1st version kW : 206.0  
 Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...110

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 13.40...13.50

Del.quantity cm3/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300

Contr.-rod trav. m: 5.80...6.00

Del.quantity cm3/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 650

Cont.-rod travelmm: 19.20...20.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Charge press. hPa : 750

Del.quantity cm3/ : 197.0...199.0

1000H.: (194.0...202.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 91...97

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 20.0



Testing:  
1st c-rod trav.mm : 12.40  
Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1220...1250  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I  
Control-lever  
position degrees: 70...76  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.9

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 7.50  
Speed 1/min : 300  
C-rod trav.mm : 5.90  
C-rod trav.mm : 2.00  
Speed 1/min : 380...420

compensator (LDA,ADA,ALDA)

1st version  
Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.70...11.00

Measurement  
Speed 1/min : 500  
1st pressure hPa : 230  
C-rod trav.mm : 11.00...11.20  
2nd pressure hPa : 370  
C-rod trav.mm : 12.40...12.60

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 750  
Speed 1/min : 600  
Del. quantity cm<sup>3</sup>/ : 195.0...198.0  
1000H.: (192.0...201.0)  
Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 144.0...146.0  
1000H.: (141.0...149.0)

Dispersion cm<sup>3</sup>/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 12.40  
Speed 1/min : 1145...1160

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 150.0...170.0  
1000H.: (146.0...174.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 12,2 A  
Edition : 1.9.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 746 807

Injection pump  
Pump designation : PES6P120A720RS7121  
EP type number : 0 412 726 804  
Governor  
Governor design. : RQV250...950PA793-1  
Governor no. : 0 421 813 591

Customer-spec. information  
Customer : PERKINS

Engine : EAGLE LE

1st version kW : 300,0  
Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.80...4.90  
                  : (4.75...4.95)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence      : 1- 4- 2- 6- 3- 5

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + -      : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed      1/mi: 700

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm3/ : 20.9...21.1

100H.: (20.6...21.4)

Dispersion    cm3/ : 0.6

100H.: (0.9)

2nd speed      1/min: 250.0

Contr.-rod trav. m: 4.8...5.0

Del.quantity cm3/ : 1.3...1.7

100H.: (-)

Dispersion    cm3/ : 0.3

100H.: (0.6)

(b) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed      1/min: 250

Sleeve travel mm: 1.10...1.20

2nd speed      1/min: 300

Sleeve travel mm: 1.70...2.00

3rd speed      1/min: 500

Sleeve travel mm: 3.00...3.30

4th speed      1/min: 1000

Sleeve travel mm: 8.20...8.40

5th speed      1/min: 1070

Sleeve travel mm: 9.30...9.60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed          1/min: 1010

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed          1/min: 700

Charge press. hPa : 900

Del.quantity cm3/ : 209.0...211.0  
                  1000H.: (206.0...214.0)  
Dispersion    cm3/ : 6.00  
                  1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

Testing:

1st c-rod trav.mm : 11.60  
Speed          1/min : 990...1000  
2nd c-rod trav.mm : 4.00  
Speed          1/min : 1055...1085  
4th speed      1/min : 1200  
C-rod trav.mm   : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 11...19

Testing:

Speed          1/min : 100  
C-rod trav.mm min : 6.30  
Speed          1/min : 250  
C-rod trav.mm   : 4.80...5.00

#### CONSTANT REGULATION

Speed          1/min : 250...350

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed          1/min : 500  
Pressure      hPa   : 900  
Contr.-rod trav.mm: 12.60...12.70

Measurement

Speed          1/min : 500  
1st pressure hPa : -  
C-rod trav.mm   : 11.10...11.20  
2nd pressure hPa : 510  
C-rod trav.mm   : 12.20...12.30  
3rd pressure hPa : 350  
C-rod trav.mm   : 11.40...11.60

#### SWITCH-OVER POINT

Speed          1/min : 170 (190)

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed          1/min : 500  
Del.quantity cm3/ : 160.0...164.0  
                  1000H.: (158.0...166.0)

## ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 11.60  
Speed 1/min : 990...1000

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...170.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

## LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 4.80...5.00  
Del.quantity cm<sup>3</sup>/ : 13.0...17.0  
1000H.: (-)  
Dispersion cm<sup>3</sup>/ : 3.00  
1000H.: (6.00)

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 11,7 F  
 Edition : 31.07.87  
 Superceeded : 9.86  
 Calibrating oil : ISO-4113

Combinati. no. : 0 402 746 808

Injection pump  
 Pump designation : PES6P120A720LS7107  
 EP type number : 0 412 726 801  
 Governor  
 Governor design. : RQ300/1100PA805  
 Governer no. : 0 421 801 352

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM447ha

1st version kW : 206.0  
 Speed 1/min: 2200

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Contr.-rod trav. mm: 9.00...12.00  
 Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + -<sup>0</sup> : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/mi: 1100

Contr.-rod trav. mm: 13.40...13.50

Del. quantity cm<sup>3</sup>/ : 19.7...19.9

100H.: (19.4...20.2)

Dispersion cm<sup>3</sup>/ : 0.5

100H.: (0.9)

2nd speed 1/min: 300

Contr.-rod trav. m: 5.90...6.00

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm<sup>3</sup>/ : 0.8

100H.: (1.2)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300

Sleeve travel mm: 2.10...2.30

2nd speed 1/min: 650

Sleeve travel mm: 5.90...6.10

3rd speed 1/min: 1050

Sleeve travel mm: 6.20...6.40

4th speed 1/min: 1225

Sleeve travel mm: 9.10...9.30

**SLEEVE POSITION**

Control-lever position

Degree: -2

Speed 1/min: 650

Contr.-rod travel mm: 19.20...20.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1100

Charge press. hPa : 750

Del. quantity cm3/ : 197.0...199.0  
1000H.: (194.0...202.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 92...98

Setting point:  
Speed 1/min : 650  
Contr.-rod trav.mm: 20.0

Testing:  
1st c-rod trav.mm : 12.40  
Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1220...1250  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.50

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 69...75  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.9

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 7.50  
Speed 1/min : 300  
C-rod trav.mm : 5.90  
C-rod trav.mm : 2.00  
Speed 1/min : 380...420

compensator (LDA,ADA,ALDA)

1st version  
Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 11.00...11.20

Measurement  
Speed 1/min : 500  
1st pressure hPa : 230  
C-rod trav.mm : 11.30...11.50  
2nd pressure hPa : 370  
C-rod trav.mm : 12.70...12.90

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 750  
Speed 1/min : 600  
Del. quantity cm3/ : 193.0...196.0  
1000H.: (190.0...199.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm3/ : 144.0...146.0  
1000H.: (141.0...149.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 12.40  
Speed 1/min : 1145...1160

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 150.0...170.0  
1000H.: (146.0...174.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 12,2 B  
Edition : 1.9.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 402 746 809

Injection pump  
Pump designation : PES6P120A72ORS7132  
EP type number : 0 412 726 806  
Governor  
Governor design. : RQ750PA836  
Governor no. : 0 421 801 373

Customer-spec. information  
Customer : PERKINS

Engine : EAGLE LE

1st version kW : 240,0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness : 6.00x1.50x1000  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_ \_ \_ \_

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
                  : (4.45...4.65)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 4- 2- 6- 3- 5

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 14.40...14.50  
-----  
Del.quantity cm3/ : 27.4...27.8  
100H.: (27.1...28.1)  
-----  
Dispersion cm3/ : 0.5  
100H.: (0.9)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 7.9...8.1  
Del.quantity cm3/ : 3.8...4.4  
100H.: (-)  
Dispersion cm3/ : 0.8  
100H.: (1.2)

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 274.0...278.0  
1000H.: (271.0...281.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 26...34

#### Testing:

1st c-rod trav.mm : 13.40  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 780...790  
4th speed 1/min : 820  
C-rod trav.mm : 0.00...1.00

#### SWITCH-OVER POINT

Speed 1/min : 690 (0)

#### ROTATIONAL-SPEED LIMITATION

1st version

E02

1mm control-rod travel less than

full-load trav.mm: 13.40  
Speed 1/min : 750...755

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 180.0...200.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.90...8.10  
Del.quantity cm3/ : 38.0...44.0  
1000H.: (-)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

Remarks:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 11,7 C1  
 Edition : 09.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 402 776 802  
 Injection pump  
 Pump designation : PES6P120A720LS7120-1  
 EP type number : 0 412 726 808  
 Governor  
 Governor design. : RSV350..1100POAS26  
 Governor no. : 0 421 833 255

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM427 A

1st version kW : 206.0  
 Speed 1/min: 2200

**TEST BENCH REQUIREMENTS**

Calibrating-gil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Calibrating nozzle-holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/mi: 1080

Contr.-rod trav.mm: 13.20...13.30

Del. quantity cm3/ : 19.6...19.8

100H.: (19.3...20.1)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.0...5.2

Del. quantity cm3/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/ : 0.8

100H.: (1.2)

**SLEEVE POSITION**

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.50

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1080

Charge press. hPa : 750

Del. quantity cm3/ : 196.0...198.0

1000H.: (193.0...201.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 48...56

Testing:  
1st c-rod trav.mm : 12.20  
Speed 1/min : 1130...1140  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1200...1230  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 21...29  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5.6  
Speed 1/min : 350  
C-rod trav.mm : 5.60

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 750  
Contr.-rod trav.mm: 13.20...13.30

#### Measurement

Speed 1/min : 500  
1st pressure hPa : 320  
C-rod trav.mm : 11.40...11.60  
2nd pressure hPa : -  
C-rod trav.mm : 10.70...10.90

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 750  
Speed 1/min : 750  
Del.quantity cm3/ : 202.0...206.0  
1000H.: (199.0...209.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 143.0...145.0  
1000H.: (140.0...148.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than  
full-load trav.mm: 12.20

Speed 1/min : 1130...1140

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 180.0...200.0  
1000H.: (176.0...204.0)

#### Remarks:

Hydraulic latching of starting  
delivery.

Latching at 0.75 bar...0.85 bar.

Unlatching at 0.35 bar...0.45 bar.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,7 G1  
Edition : 21.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 776 803  
Injection pump  
Pump designation : PES6P120A720LS7107-1  
EP type number : 0 412 726 805  
Governor  
Governor design. : RSV350..750POAS20-1  
Governor no. : 0 421 833 262

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM447 A

1st version kW : 180.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 14.80...14.90

Del.quantity cm3/ : 22.4...22.6  
100H.: (22.1...22.9)

Dispersion cm3/ : 0.5  
100H.: (0.9)

2nd speed 1/min: 350.0  
Contr.-rod trav. m: 5.5...5.8  
Del.quantity cm3/ : 1.4...2.0  
100H.: (1.1...2.3)  
Dispersion cm3/ : 0.8  
100H.: (1.2)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00

Governor-spring reload  
Notch setting x : 2.75

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 224.0...226.0  
1000H.: (221.0...229.0)  
Dispersion cm3/ : 5.00  
1000H.: (9.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 27...35

Testing:

1st c-rod trav.mm : 13.80  
Speed 1/min : 750...755  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 775...788

LOWEST RATED SPEED I

Control-lever  
position degrees: 35...27  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5.6

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.50  
Speed 1/min : 350  
C-rod trav.mm : 5.60

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 230.0...250.0  
1000H.: (226.0...254.0)

Remarks:

Observe VDT-I-420/120

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,7 C2  
Edition : 1.9.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 402 776 804  
Injection pump  
Pump designation : PES6P120A720LS7120  
EP type number : 0 412 726 803  
Governor  
Governor design. : RSV350..1050POA529  
Governor no. : 0 421 833 267

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM447 A

1st version kW : 210.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
                  : (5.15...5.35)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 6- 2- 4- 1- 5- 3

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 600

Contr.-rod trav.mm: 14.10...14.30

Del.quantity cm3/ : 20.2...20.4

100H.: (19.9...20.7)

Dispersion cm3/ : 0.5

100H.: (0.9)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.6...5.8

Del.quantity cm3/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm3/ : 0.8

100H.: (1.2)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...0.70

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 600

Charge press. hPa : 600

Del.quantity cm3/ : 202.0...204.0

1000H.: (199.0...207.0)

Dispersion cm3/ : 5.00

1000H.: (9.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 48...56

Testing:

1st c-rod trav.mm : 13.50

Speed 1/min : 1090...1100

EOB

2nd c-rod trav.mm : 4.00  
Speed 1/min : 1190...1220  
4th speed 1/min : 1300  
C-rod trav.mm : 0.30...1.40

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 22...30  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5.7  
Speed 1/min : 350  
C-rod trav.mm : 5.70

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1050  
C-rod trav.mm : 14.80...14.90  
2nd speed 1/min : 850  
C-rod trav.mm : 15.00...15.20  
3rd speed 1/min : 960  
C-rod trav.mm : 14.90...15.00

compensator (LDA, ADA, ALDA)

#### 1st version

Setting  
Speed 1/min : 600  
Pressure hPa : 600  
Contr.-rod trav.mm: 14.10...14.30

#### Measurement

Speed 1/min : 600  
1st pressure hPa : 300  
C-rod trav.mm : 12.40...12.60  
2nd pressure hPa : 400  
C-rod trav.mm : 13.40...13.60  
3rd pressure hPa : 800  
C-rod trav.mm : 14.60...14.80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 1100  
Speed 1/min : 1050  
Del.quantity cm3/ : 220.0...223.0  
1000H.: (217.0...226.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : 1100  
Speed 1/min : 800  
Del.quantity cm3/ : 228.0...234.0  
1000H.: (225.0...237.0)

Dispersion cm3/ : 8.0  
1000H.: (12.0)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 149.0...152.0  
1000H.: (146.0...155.0)  
Dispersion cm3/ : 8.0  
1000H.: (12.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 13.50  
Speed 1/min : 1090...1100

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 190.0...210.0  
1000H.: (186.0...214.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 D 1  
Edition : 25.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 436 102  
Injection pump  
Pump designation : PES6MW100/120RS1143  
EP type number : 0 413 406 137  
Governor  
Governor design. : RQV300...1050MW78  
Governor no. : 0 420 083 118

Customer-spec. information  
Customer : CUMMINS/US

Engine : 6 CTA-830

1st version kW : 175.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.15...3.25  
                  : (3.10...3.30)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1050

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm<sup>3</sup>/ : 14.9...15.1  
100H.: (14.7...15.3)

Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.6)

2nd speed 1/min: 300.0  
Contr.-rod trav. m: 7.7...7.8  
Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
100H.: (1.4...2.2)

Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1100  
Sleeve travel mm: 7.80...8.00  
2nd speed 1/min: 1170  
Sleeve travel mm: 8.50...8.90  
3rd speed 1/min: 300  
Sleeve travel mm: 0.80...1.20  
4th speed 1/min: 600  
Sleeve travel mm: 3.20...3.80

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1150  
Cont.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1050  
Charge press. hPa : 700  
Del.quantity cm<sup>3</sup>/ : 149.0...151.0  
1000H.: (147.0...153.0)

Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 44...52

Testing:  
1st c-rod trav.mm : 91.60  
Speed 1/min : 1120...1130  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1205...1235  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 7.7

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 9.30  
Speed 1/min : 300  
C-rod trav.mm : 7.70...7.80

#### CONSTANT REGULATION

Speed 1/min : 320...550  
compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.00...10.10

#### Measurement

Speed 1/min : 500  
1st pressure hPa : 200  
C-rod trav.mm : 11.00...11.10  
2nd pressure hPa : 360  
C-rod trav.mm : 12.00...12.30  
3rd pressure hPa : 700  
C-rod trav.mm : 12.60...12.70

#### SWITCH-OVER POINT

Speed 1/min : 220 (230)

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 700



Speed 1/min : 800  
Del.quantity cm3/ : 147.0...151.0  
1000H.: (145.0...153.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 90.5...92.5  
1000H.: (88.5...94.5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 11.60  
Speed 1/min : 1120...1130

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 205.0...225.0  
1000H.: (202.0...228.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.70...7.80  
Del.quantity cm3/ : 16.0...20.0  
1000H.: (14.0...22.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 4,0 A 14  
 Edition : 25.08.87  
 Superceeded : -  
 Calibrating oil : ISO-4113

Combination no. : 0 403 444 110

Injection pump  
 Pump designation : PES4MW100/72ORS1127  
 EP type number : 0 413 404 103  
 Governor  
 Governor design. : RQV300...1300MW48-1  
 Governor no. : 0 420 083 084

Customer-spec. information  
 Customer : DB

Engine : OM 364 A

1st version kW : 85.0  
 Speed 1/min: 2600

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>0</sup>CS: 0-90-180-270  
 Tolerance + - : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 1300  
 -----  
 Contr.-rod trav.mm: 11.10...11.20  
 -----  
 Del.quantity cm3/ : 8.5...8.7  
 -----  
 100H.: (8.3...8.9)  
 -----  
 Dispersion cm3/ : 0.35  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 7.8...7.9  
 Del.quantity cm3/ : 1.0...1.4  
 100H.: (0.8...1.6)  
 Dispersion cm3/ : 0.35  
 100H.: (0.5)

**SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed 1/min: 1330  
 Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 1300  
 Del.quantity cm3/ : 85.0...87.0  
 1000H.: (83.0...89.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 50...58

**Testing:**

1st c-rod trav.mm : 10.10  
 Speed 1/min : 1340...1350  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1430...1460  
 4th speed 1/min : 1550  
 C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
 position degrees: 17...25  
 Setting point w/out aux. spring

Speed 1/min : 300  
Contr.-rod trav.mm: 7.85

Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.50  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90

Remarks:

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300  
C-rod trav.mm : 11.10...11.20  
2nd speed 1/min : 750  
C-rod trav.mm : 11.90...12.10  
3rd speed 1/min : 585  
C-rod trav.mm : 12.10...12.30  
4th speed 1/min : 1000  
C-rod trav.mm : 11.10...11.30

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750  
Del.quantity cm<sup>3</sup>/ : 84.5...86.5  
1000H.: (82.5...88.5)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 585  
Del.quantity cm<sup>3</sup>/ : 80.5...83.5  
1000H.: (78.5...86.5)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.10  
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 80.0...90.0  
1000H.: (77.0...93.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm<sup>3</sup>/ : 10.0...14.0  
1000H.: (8.0...16.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4,0 A 19  
Edition : 25.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 444 112  
Injection pump  
Pump designation : PES4MW100/72ORS1127  
EP type number : 0 413 404 103  
Governor  
Governor design. : RQV300...1300MW48-2  
Governor no. : 0 420 083 110

Customer-spec. information  
Customer : DB

Engine : OM 364 A  
1st version kW : 85.0  
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 008  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 30...32  
Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm3/ : 8.5...8.7

100H.: (8.3...8.9)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.8...7.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.8...1.6)

Dispersion cm3/ : 0.35

100H.: (0.5)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1330

Cont.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm3/ : 85.0...87.0

1000H.: (83.0...89.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...58

#### Testing:

1st c-rod trav.mm : 10.10

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1430...1460

4th speed 1/min : 1550

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 17...25

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 7.85

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.50

Speed 1/min : 300

C-rod trav.mm : 7.80...7.90

#### CONSTANT REGULATION

Speed 1/min : 330...600

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 11.10...11.20

2nd speed 1/min : 750

C-rod trav.mm : 11.80...12.10

3rd speed 1/min : 585

C-rod trav.mm : 12.10...12.30

4th speed 1/min : 1000

C-rod trav.mm : 11.10...11.30

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm3/ : 84.5...86.5

1000H.: (82.5...88.5)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Speed 1/min : 585

Del.quantity cm3/ : 80.5...83.5

1000H.: (78.5...86.5)

Dispersion cm3/ : 5.00

1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.10

Speed 1/min : 1340...1350

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 300

Contr.-rod trav.mm: 7.80...7.90

Del.quantity cm3/ : 10.0...14.0

1000H.: (8.0...16.0)

Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4,0 A 20  
Edition : 25.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 403 444 113

Injection pump  
Pump designation : PES4MW100/72ORS1151  
EP type number : 0 413 404 104  
Governor  
Governor design. : RQV300...1300MWS0-3  
Governor no. : 0 420 083 129

Customer-spec. information  
Customer : DB

Engine : OM 364 LA

1st version kW : 100.0  
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 12.60...12.70

Del.quantity cm<sup>3</sup>/ : 9.8...10.0

100H.: (9.6...10.2)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300

Contr.-rod trav. m: 6.8...6.9

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100H.: (0.7...1.6)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.50...8.70

2nd speed 1/min: 1450

Sleeve travel mm: 9.50...9.90

3rd speed 1/min: 500

Sleeve travel mm: 2.70...3.30

4th speed 1/min: 300

Sleeve travel mm: 1.30...1.70

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1340

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm<sup>3</sup>/ : 98.0...100.0

1000H.: (96.0...102.0)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 49...57

Testing:

1st c-rod trav.mm : 11.60

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1445...1475

4th speed 1/min : 1550

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 16...24

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.8

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.40

Speed 1/min : 300

C-rod trav.mm : 6.80...6.90

#### CONSTANT REGULATION

Speed 1/min : 320...550

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 200

Contr.-rod trav.mm: 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10.50...10.60

2nd pressure hPa : 335

C-rod trav.mm : 12.10...12.40

3rd pressure hPa : 700

C-rod trav.mm : 12.60...12.70

#### SWITCH-OVER POINT

Speed 1/min : 220 (250)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 600

Del.quantity cm<sup>3</sup>/ : 82.5...85.5

1000H.: (80.0...88.5)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (7.00)



Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 49.0...51.0  
1000H.: (47.0...53.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 11.60  
Speed 1/min : 1340...1350

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 85.0...95.0  
1000H.: (82.0...98.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.80...6.90  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (7.5...16.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 12  
Edition : 20.08.87  
Superceeded : 11.85  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 124

Injection pump  
Pump designation : PES6MW100/72ORS1101  
EP type number : 0 413 406 102  
Governor  
Governor design. : RQV300...1300MW34  
Governor no. : 0 420 083 032

Customer-spec. information  
Customer : DB

Engine : OM362LA

1st version kW : 141.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 11.90...12.00  
-----  
Del.quantity cm3/ : 9.4...9.6  
-----  
100H.: (9.2...9.8)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.0...6.1  
Del.quantity cm3/ : 1.0...1.4  
100H.: (0.8...1.7)  
Dispersion cm3/ : 0.3  
100H.: (0.6)

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1300  
Cont.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 700  
Del.quantity cm3/ : 94.5...96.5  
1000H.: (92.5...98.5)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 57...65

#### Testing:

1st c-rod trav.mm : 10.90  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1460...1490  
4th speed 1/min : 1600  
C-rod trav.mm : 0.10...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 16...24

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.0

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.60  
Speed 1/min : 300  
C-rod trav.mm : 6.00...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 460...520

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : -  
Contr.-rod trav.mm: 10.20...10.30

#### Measurement

Speed 1/min : 500  
1st pressure hPa : 100  
C-rod trav.mm : 0.40...0.50  
2nd pressure hPa : 125  
C-rod trav.mm : 0.90...1.10  
3rd pressure hPa : 700  
C-rod trav.mm : 11.90...12.00

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 700  
Speed 1/min : 800  
Del.quantity cm3/ : 92.0...96.0  
1000H.: (90.0...98.0)  
Dispersion cm3/ : 5.0  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 54.5...56.5  
1000H.: (52.5...58.5)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than  
full-load trav.mm: 10.90  
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 10.5...14.5  
1000H.: (8.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 5,7 A 11  
Edition : 20.08.87  
Superceeded : 12.83  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 134

Injection pump  
Pump designation : PES6MW100/72ORS1101  
EP type number : 0 413 406 102  
Governor  
Governor design. : RQV300...1300MW44  
Governor no. : 0 420 083 053

Customer-spec. information  
Customer : DB

Engine : OM362LA

1st version kW : 141.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.90...12.00

Del.quantity cm3/ : 9.4...9.6

100H.: (9.2...9.8)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.1

Del.quantity cm3/ : 1.0...1.4

100H.: (0.8...1.7)

Dispersion cm3/ : 0.3

100H.: (0.5)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1330

Cont.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

##### 1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm3/ : 94.5...96.5

1000H.: (92.5...98.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

##### 1st version

Control-lever

position degrees: 60...68

#### Testing:

1st c-rod trav.mm : 10.90

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1435...1465

4th speed 1/min : 1600

C-rod trav.mm : 0.10...1.00

#### LOWEST RATED SPEED 1

Control-lever

position degrees: 7...15

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.0

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.6

Speed 1/min : 300

C-rod trav.mm : 6.00...6.10

C-rod trav.mm : 2.00

Speed 1/min : 520...580

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 10.00...10.10

##### Measurement

Speed 1/min : 500

1st pressure hPa : 100

C-rod trav.mm : 0.40...0.50

2nd pressure hPa : 125

C-rod trav.mm : 0.90...1.10

3rd pressure hPa : 700

C-rod trav.mm : 11.90...12.00

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 700

Speed 1/min : 800

Del.quantity cm3/ : 92.0...96.0

1000H.: (90.0...98.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm3/ : 51.5...53.5

1000H.: (49.5...55.5)

Dispersion cm3/ : 3.50

1000H.: 6.00

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 10.90

Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 80.0...90.0  
1000H.: (77.0...93.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm<sup>3</sup>/ : 10.5...14.5  
1000H.: (8.0...17.0)  
Dispersion cm<sup>3</sup>/ : 3.5  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 8,7 0  
Edition : 20.08.87  
Superceeded : 09.83  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 143

Injection pump  
Pump designation : PES6MW100/72ORS1101  
EP type number : 0 413 406 102  
Governor  
Governor design. : RQV300...1300MW44-1  
Governor no. : 0 420 083 064

Customer-spec. information  
Customer : DB

Engine : OM362LA

1st version kW : 141,0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness : 6.00X2.00X600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Contr.-rod trav.mm: 9.00...12.00



Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.90...12.00

Del.quantity cm<sup>3</sup>/ : 9.4...9.6

100H.: (9.2...9.8)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.0...6.1

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100H.: (0.8...1.7)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1330

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm<sup>3</sup>/ : 94.5...96.5

1000H.: (92.5...98.5)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 60...68

Testing:

1st c-rod trav.mm : 10.90

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1435...1465

4th speed 1/min : 1600

C-rod trav.mm : 0.10...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 7...15

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.60

Speed 1/min : 300

C-rod trav.mm : 6.00...6.10

C-rod trav.mm : 2.00

Speed 1/min : 520...580

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : -

Contr.-rod trav.mm: 10.20...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : 100

C-rod trav.mm : 0.40...0.50

2nd pressure hPa : 125

C-rod trav.mm : 0.90...1.10

3rd pressure hPa : 700

C-rod trav.mm : 11.90...12.00

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 800

Del.quantity cm<sup>3</sup>/ : 92.0...96.0

1000H.: (90.0...98.0)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (7.00)

Charge press. hPa : -

Speed 1/min : 500

Del.quantity cm<sup>3</sup>/ : 54.5...56.5

1000H.: (52.5...58.5)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: 6.00

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 10.5...14.5  
1000H.: (8.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:  
Set intermediate-speed stop (ZDA) to  
contact at 1300 1/min, then turn back  
1/2 turn.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 6,0 D 30  
 Edition : 10.04.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 446 145  
 Injection pump  
 Pump designation : PES6MW100/72ORS1114  
 EP type number : 0 413 406 109  
 Governor  
 Governor design. : RQV300...1300MW48  
 Governer no. : 0 420 083 066

Customer-spec. information  
 Customer : DB

Engine : OM366A  
 1st version kW : 125.0  
 Speed 1/min: 2600

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Contr.-rod trav.mm: 9.00...12.00

F02

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>c</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 1300  
 -----  
 Contr.-rod trav.mm: 11.00...11.10  
 -----  
 Del.quantity cm3/ : 7.7...7.9  
 -----  
 100H.: (7.5...8.1)  
 -----  
 Dispersion cm3/ : 0.35  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 7.8...7.9  
 Del.quantity cm3/ : 0.9...1.3  
 100H.: (0.8...1.4)  
 Dispersion cm3/ : 0.35  
 100H.: (0.5)

**SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed 1/min: 1330  
 Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 1300  
 Del.quantity cm3/ : 77.0...79.0  
 1000H.: (75.0...81.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 48...56  
 Testing:  
 1st c-rod trav.mm : 10.00  
 Speed 1/min : 1340...1350  
 2nd c-rod trav.mm : 4.00  
 Speed 1/min : 1430...1460  
 4th speed 1/min : 1520  
 C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
 position degrees: 14...22  
 Setting point w/out aux. spring

Speed 1/min : 300  
Contr.-rod trav.mm: 7.85

Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.00)

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.40  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90  
C-rod trav.mm : 2.00  
Speed 1/min : 500...560

Remarks:

CONSTANT REGULATION

Speed 1/min : 330...600

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 700  
C-rod trav.mm : 12.10...12.20  
3rd speed 1/min : 720  
C-rod trav.mm : 12.10...12.20  
4th speed 1/min : 800  
C-rod trav.mm : 11.80...12.00  
5th speed 1/min : 900  
C-rod trav.mm : 11.40...11.70

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700  
Del.quantity cm<sup>3</sup>/ : 75.0...77.0  
1000H.: (73.0...79.0)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10.00  
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 72.0...80.0  
1000H.: (69.0...83.0)  
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm<sup>3</sup>/ : 9.0...13.0  
1000H.: (8.0...14.0)

F03

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 17  
Edition : 24.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 156  
Injection pump  
Pump designation : PES6MW100/72ORS1120  
EP type number : 0 413 406 112  
Governor  
Governor design. : RQV300...1300MW59  
Governor no. : 0 420 083 077

Customer-spec. information  
Customer : MBB

Engine : OM 366 LA

1st version kW : 141.7

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
                  : (3.45...3.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 12.10...12.20  
-----  
Del.quantity cm<sup>3</sup>/ : 8.9...9.1  
-----  
100H.: (8.7...9.3)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 6.0...6.1  
Del.quantity cm<sup>3</sup>/ : 1.0...1.4  
100H.: (0.7...1.6)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1340  
Sleeve travel mm: 8.50...8.60  
2nd speed 1/min: 800  
Sleeve travel mm: 4.40...4.80  
3rd speed 1/min: 500  
Sleeve travel mm: 2.70...3.30  
4th speed 1/min: 300  
Sleeve travel mm: 1.20...1.70

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1340  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 700  
Del.quantity cm<sup>3</sup>/ : 89.0...91.0  
1000H.: (87.0...93.0)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 48...56

#### Setting point:

Speed 1/min : 1340  
Contr.-rod trav.mm: 16.5

#### Testing:

1st c-rod trav.mm : 11.10  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1440...1470  
3rd c-rod trav.mm : 4.00  
4th speed 1/min : 1530  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 16...24  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.0

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.00  
Speed 1/min : 300  
C-rod trav.mm : 6.00...6.10  
C-rod trav.mm : 2.00

#### CONSTANT REGULATION

Speed 1/min : 320...550

compensator (LDA, ADA, ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 12.00...12.10

#### Measurement

Speed 1/min : 500  
C-rod trav.mm : 10.80...10.90  
2nd pressure hPa : 260  
C-rod trav.mm : 11.00...11.10  
3rd pressure hPa : 310  
C-rod trav.mm : 11.70...12.00

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 700  
Speed 1/min : 750  
Del.quantity cm<sup>3</sup>/ : 82.0...86.0  
1000H.: (79.5...88.5)

Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 500  
Del.quantity cm3/ : 53.0...55.0  
1000H.: (51.0...57.0)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11.10  
Speed 1/min : 1340...1350

MIDDLE RATED SPEED  
Contr.-rod trav.mm: 4.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 85.0...95.0  
1000H.: (82.0...98.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (7.5...16.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6,1 N8  
Edition : 14,8.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 9 403 446 166

Injection pump  
Pump designation : PES6MW100/72ORS1133  
EP type number : 0 413 406 126  
Governor  
Governor design. : RQ325...1325MW65  
Governor no. : 0 420 082 018

Customer-spec. information  
Customer : KHD

Engine : BF 6L 913 BW

1st version kW : 124,0  
Speed 1/min: 2650

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3,50...3,60  
                  : (3,45...3,65)

Contr.-rod trav.mm: 9,00...12,00



Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)

#### BASIC SETTING

1st speed 1/mi: 1325  
-----  
Contr.-rod trav.mm: 11,00...11,10  
-----  
Del.quantity cm3/ : 10,1...10,3  
-----  
100H.: (9,9...10,5)  
-----  
Dispersion cm3/ : 0,3  
-----  
100H.: (0,6)  
-----  
2nd speed 1/min: 325  
Contr.-rod trav. m: 7,00...7,10  
Del.quantity cm3/ : 1,1...1,5  
100H.: (0,9...1,7)  
Dispersion cm3/ : 0,3  
100H.: (0,5)

#### SLEEVE POSITION

Control-lever position  
Degree: -2  
Speed 1/min: 700  
Contr.-rod travelmm: 19,20...20,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1325  
Charge press. hPa : 700  
Del.quantity cm3/ : 101,0...103,0  
1000H.: (99,0...105,0)  
Dispersion cm3/ : 3,50  
1000H.: (6,00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 26...34

Setting point:  
Speed 1/min : 700  
Contr.-rod trav.mm: 20,0

Testing:  
1st c-rod trav.mm : 10,00  
Speed 1/min : 1375...1385  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1445...1475  
4th speed 1/min : 1550  
C-rod trav.mm : 0,10...1,00

F08

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 8...16  
Setting point w/out aux. spring  
Speed 1/min : 8,60  
Contr.-rod trav.mm: 325

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8,60  
Speed 1/min : 325  
C-rod trav.mm : 7,00...7,10

#### CONSTANT REGULATION

Speed 1/min : 340...450  
compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 700  
Contr.-rod trav.mm: 11,00...11,10

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9,50...9,60  
2nd pressure hPa : 350  
C-rod trav.mm : 10,10...10,40  
3rd pressure hPa : 450  
C-rod trav.mm : 10,70...10,80

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 700  
Speed 1/min : 850  
Del.quantity cm3/ : 93,0...97,0  
1000H.: (91,0...99,0)  
Dispersion cm3/ : 3,50  
1000H.: (7,00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 57,0...59,0  
1000H.: (55,0...61,0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 120,0...140,0  
1000H.: (117,0...143,0)

#### LOW IDLE

Speed 1/min : 325  
Contr.-rod trav.mm: 7,00...7,10  
Del.quantity cm<sup>3</sup>/ : 11,0...15,0  
1000H.: (9,0...17,0)  
Dispersion cm<sup>3</sup>/ : 3,50  
1000H.: (5,00)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 26  
 Edition : 10.08.87  
 Superceeded : 13.05.87  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 446 177  
 Injection pump  
 Pump designation : PES6MW100/72ORS1144  
 EP type number : 0 413 406 138  
 Governor  
 Governor design. : RQV300...1300MW48  
 Governer no. : 0 420 083 066

Customer-spec. information  
 Customer : DB

Engine : OM366A

1st version kW : 125.0  
 Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Contr.-rod trav.mm: 9.00...12.00

F10

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300  
 -----  
 Contr.-rod trav.mm: 11.00...11.10  
 -----  
 Del.quantity cm3/ : 8.2...8.4  
 -----  
 100H.: (8.0...8.6)  
 -----  
 Dispersion cm3/ : 0.3  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 7.8...7.9  
 Del.quantity cm3/ : 1.0...1.4  
 100H.: (0.9...1.5)  
 Dispersion cm3/ : 0.3  
 100H.: (0.5)

(B) Setting of injection pump with  
 externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1340  
 Sleeve travel mm: 8.50...8.70  
 2nd speed 1/min: 1450  
 Sleeve travel mm: 9.30...9.70  
 3rd speed 1/min: 500  
 Sleeve travel mm: 2.70...3.30  
 4th speed 1/min: 300  
 Sleeve travel mm: 1.20...1.70

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1350  
 Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1300  
 Del.quantity cm3/ : 82.0...84.0  
 1000H.: (80.0...86.0)  
 Dispersion cm3/ : 3.50  
 1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 50...58

Testing:  
1st c-rod trav.mm : 10.00  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1425...1455  
4th speed 1/min : 1550  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 7.8

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.70  
Speed 1/min : 300  
C-rod trav.mm : 7.80...7.90

#### CONSTANT REGULATION

Speed 1/min : 330...500

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 800  
C-rod trav.mm : 11.80...12.00  
3rd speed 1/min : 585  
C-rod trav.mm : 12.00...12.20  
4th speed 1/min : 1100  
C-rod trav.mm : 11.00...11.10

#### SWITCH-OVER POINT

Speed 1/min : 230 (250)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm3/ : 81.0...83.0  
1000H.: (79.0...85.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 585  
Del.quantity cm3/ : 77.5...80.5  
1000H.: (75.0...83.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10.00  
Speed 1/min : 1340...1350

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (9.0...15.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R14  
Edition : 31.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 183  
Injection pump  
Pump designation : PES6MW100/32ORS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...130DMW46-11  
Governor no. : 0 420 083 120

Customer-spec. information  
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 154.5  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm<sup>3</sup>/ : 10.6...10.8

100H.: (10.4...11.0)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 5.7...5.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.0

100H.: (1.3...2.2)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1350

Sleeve travel mm: 8.30...8.50

2nd speed 1/min: 1460

Sleeve travel mm: 9.10...9.50

3rd speed 1/min: 550

Sleeve travel mm: 3.10...3.70

4th speed 1/min: 350

Sleeve travel mm: 1.30...1.70

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1380

Cont.-rod travelmm: 6.60...9.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Charge press. hPa : 700

Del.quantity cm<sup>3</sup>/ : 106.5...108.5

1000H.: (104.5...110.5)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 45...50

Testing:

1st c-rod trav.mm : 10.00

Speed 1/min : 1345...1365

2nd c-rod trav.mm : 4.00

Speed 1/min : 1455...1465

4th speed 1/min : 1500

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 10...18

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 5.7

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.00

Speed 1/min : 350

C-rod trav.mm : 5.70...5.80

#### CONSTANT REGULATION

Speed 1/min : 300...450

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 170

Contr.-rod trav.mm: 10.20...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.90...10.00

2nd pressure hPa : 315

C-rod trav.mm : 10.60...10.90

3rd pressure hPa : 700

C-rod trav.mm : 11.00...11.10

#### SWITCH-OVER POINT

Speed 1/min : 220 (210)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 1300

Del.quantity cm<sup>3</sup>/ : 108.0...112.0

1000H.: (106.0...114.0)

Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm<sup>3</sup>/ : 81.5...83.5  
1000H.: (79.5...85.5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 10.00  
Speed 1/min : 1345...1365

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5.70...5.80  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Remarks:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Before checking sleeve position,  
first adjust latching.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R15  
Edition : 31.07.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 185

Injection pump  
Pump designation : PES6MW100/32ORS1140  
EP type number : 0 413 406 135  
Governor  
Governor design. : RQV350...1200MW72-1  
Governor no. : 0 420 083 122

Customer-spec. information  
Customer : NAVISTAR

Engine : DT-466 C

1st version kW : 134.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32



Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 11.40...11.50  
-----  
Del.quantity cm<sup>3</sup>/ : 9.1...9.3  
-----  
100H.: (8.9...9.5)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.6...6.7  
Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1250  
Sleeve travel mm: 7.80...8.00  
2nd speed 1/min: 1340  
Sleeve travel mm: 8.80...9.20  
3rd speed 1/min: 500  
Sleeve travel mm: 2.60...3.20  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.80

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1380  
Contr.-rod travelmm: 6.70...9.30

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 800  
Del.quantity cm<sup>3</sup>/ : 91.5...93.5  
1000H.: (89.5...95.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

F16

1st version  
Control-lever  
position degrees: 42...47

#### Testing:

1st c-rod trav.mm : 10.40  
Speed 1/min : 1250...1270  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1360...1370  
4th speed 1/min : 1450  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.6

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.60...6.70

#### CONSTANT REGULATION

Speed 1/min : 370...500

#### SWITCH-OVER POINT

Speed 1/min : 280 (290)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1200  
Del.quantity cm<sup>3</sup>/ : 94.0...98.0  
1000H.: (92.0...100.0)  
Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 10.40  
Speed 1/min : 1250...1270

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.60...6.70

Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 21  
Edition : 10.08.87  
Superceeded : 09.03.87  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 446 187  
  
Injection pump  
Pump designation : PES6MW100/72ORS1129  
EP type number : 0 413 406 121  
Governor  
Governor design. : RQV300...1300MW50-2  
Governor no. : 0 420 083 124

Customer-spec. information  
Customer : DB

Engine : OM 366 LA

1st version kW : 150.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 11.20...11.30

Del.quantity cm3/ : 9.3...9.5

100H.: (9.1...9.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 5.5...5.6

Del.quantity cm3/ : 1.0...1.2

100H.: (0.8...1.6)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1340

Sleeve travel mm: 8.60...8.80

2nd speed 1/min: 1430

Sleeve travel mm: 9.30...9.70

3rd speed 1/min: 300

Sleeve travel mm: 1.20...1.60

4th speed 1/min: 700

Sleeve travel mm: 3.80...4.40

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1340

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm3/ : 93.0...95.0

1000H.: (91.0...97.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 51...59

Testing:  
1st c-rod trav.mm : 10.20  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1430...1460  
4th speed 1/min : 1550  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 15...23  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 5.5

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 7.50  
Speed 1/min : 300  
C-rod trav.mm : 5.50...5.60

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 2.00

#### CONSTANT REGULATION

Speed 1/min : 320...530

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 400  
Contr.-rod trav.mm: 9.90...10.0

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 9.50...9.60  
2nd pressure hPa : 500  
C-rod trav.mm : 10.80...11.10  
3rd pressure hPa : 700  
C-rod trav.mm : 11.20...11.30

#### SWITCH-OVER POINT

Speed 1/min : 220 (230)

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 53.0...55.0  
1000H.: (51.0...57.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10.20  
Speed 1/min : 1340...1350

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 90.0...100.0  
1000H.: (87.0...103.0)

#### LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 5.50...5.60  
Del.quantity cm3/ : 10.0...12.0  
1000H.: (8.0...16.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R22  
Edition : 10.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 192

Injection pump  
Pump designation : PES6MW100/32ORS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...1300MW72-2  
Governor no. : 0 420 083 141

Customer-spec. information  
Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 900  
-----  
Contr.-rod trav.mm: 10.30...10.40  
-----  
Del.quantity cm<sup>3</sup>/ : 8.9...9.1  
-----  
100H.: (8.7...9.3)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.1...6.2  
Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1350  
Sleeve travel mm: 8.30...8.50  
2nd speed 1/min: 1460  
Sleeve travel mm: 9.10...9.50  
3rd speed 1/min: 550  
Sleeve travel mm: 3.10...3.70  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.70

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1380  
Contr.-rod travelmm: 6.60...9.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 900  
Del.quantity cm<sup>3</sup>/ : 89.5...91.5  
1000H.: (87.5...93.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

F21

1st version  
Control-lever  
position degrees: 44...49

#### Testing:

1st c-rod trav.mm : 9.40  
Speed 1/min : 1360...1380  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1460...1470  
4th speed 1/min : 1500  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.1

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.10...6.20

#### CONSTANT REGULATION

Speed 1/min : 300...450

#### SWITCH-OVER POINT

Speed 1/min : 220 (210)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1300  
Del.quantity cm<sup>3</sup>/ : 91.5...95.5  
1000H.: (89.5...97.5)  
Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 9.40  
Speed 1/min : 1360...1380

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.10...6.20

Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : IHC 7,6 S  
 Edition : 10.08.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 403 446 193  
 Injection pump  
 Pump designation : PES6MW100/32ORS1159  
 EP type number : 0 413 406 146  
 Governor  
 Governor design. : RQV350...1300MW72-3  
 Governor no. : 0 420 083 142

Customer-spec. information  
 Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0  
 Speed 1/min: 2600

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
 assembly : 1 688 901 016

Opening  
 pressure, bar : 207...210

Perforated-plate  
 diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
 : (3.90...4.10)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 900

Contr.-rod trav.mm: 11.00...11.10

Del.quantity cm<sup>3</sup>/ : 9.5...9.7

100H.: (9.3...9.9)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.4...6.5

Del.quantity cm<sup>3</sup>/ : 1.6...2.0

100H.: (1.3...2.2)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 1250

Sleeve travel mm: 7.80...8.00

2nd speed 1/min: 1340

Sleeve travel mm: 8.80...9.20

3rd speed 1/min: 500

Sleeve travel mm: 2.60...3.20

4th speed 1/min: 350

Sleeve travel mm: 1.30...1.80

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1380

Cont.-rod travelmm: 6.70...9.30

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 900

Del.quantity cm<sup>3</sup>/ : 95.0...97.0

1000H.: (93.0...99.0)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

**HIGHEST RATED SPEED**



1st version  
Control-lever  
position degrees: 46...51

Testing:

1st c-rod trav.mm : 10.00  
Speed 1/min : 1370...1390  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1475...1485  
4th speed 1/min : 1450  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever  
position degrees: 11...19  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.4

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.40...6.50

CONSTANT REGULATION

Speed 1/min : 370...500

SWITCH-OVER POINT

Speed 1/min : 280 (290)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1200  
Del.quantity cm<sup>3</sup>/ : 99.5...103.5  
1000H.: (97.5...105.5)  
Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00  
Speed 1/min : 1370...1390

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.40...6.50

Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R20  
Edition : 31.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 194  
Injection pump  
Pump designation : PES6MW100/320RS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...1300MW46-12  
Governor no. : 0 420 083 143

Customer-spec. information  
Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 900  
-----  
Contr.-rod trav.mm: 10.80...10.90  
-----  
Del.quantity cm<sup>3</sup>/ : 10.3...10.5  
-----  
100H.: (10.1...10.7)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----

2nd speed 1/min: 350.0  
Contr.-rod trav. m: 5.5...5.6  
Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 1350  
Sleeve travel mm: 8.30...8.50  
2nd speed 1/min: 1460  
Sleeve travel mm: 9.10...9.50  
3rd speed 1/min: 550  
Sleeve travel mm: 3.10...3.70  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.70

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1380  
Cont.-rod travelmm: 6.60...9.20

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 900  
Charge press. hPa : 800  
Del.quantity cm<sup>3</sup>/ : 103.0...105.0  
1000H.: (101.0...107.0)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 43...48

#### Testing:

1st c-rod trav.mm : 9.80  
Speed 1/min : 1350...1370  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1455...1465  
4th speed 1/min : 1500  
C-rod trav.mm : 0.00...1.00

### LOWEST RATED SPEED I

Control-lever  
position degrees: 7...15  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5.5

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 5.50...5.60

### CONSTANT REGULATION

Speed 1/min : 360...450

compensator (LDA, ADA, ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 170  
Contr.-rod trav.mm: 10.30...10.40

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 10.10...10.20  
2nd pressure hPa : 230  
C-rod trav.mm : 10.60...10.80  
3rd pressure hPa : 800  
C-rod trav.mm : 10.80...10.90

### SWITCH-OVER POINT

Speed 1/min : 280 (290)

### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 800  
Speed 1/min : 1300  
Del. quantity cm<sup>3</sup>/ : 103.0...107.0  
1000H.: (101.0...109.0)

Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 87.0...89.0  
1000H.: (85.0...91.0)

### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 9.80  
Speed 1/min : 1350...1370

### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5.50...5.60  
Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

#### Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R21  
Edition : 31.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 195  
Injection pump  
Pump designation : PES6MW100/32ORS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...1200MW46-13  
Governor no. : 0 420 083 144

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 180,0  
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 12.30...12.40  
-----  
Del.quantity cm<sup>3</sup>/ : 11.7...11.9  
-----  
100H.: (11.5...12.1)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav, m: 6.3...6.4  
Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 1350  
Sleeve travel mm: 8.30...8.50  
2nd speed 1/min: 1460  
Sleeve travel mm: 9.10...9.50  
3rd speed 1/min: 550  
Sleeve travel mm: 3.10...3.70  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.70

**SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed 1/min: 1380  
Cont.-rod travelmm: 6.70...9.30

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 800  
Charge press. hPa : 800  
Del.quantity cm<sup>3</sup>/ : 117.5...119.5  
1000H.: (115.5...121.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 43...48

**Testing:**

1st c-rod trav.mm : 11.40  
Speed 1/min : 1240...1260  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1370...1380  
4th speed 1/min : 1500  
C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 9...17  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.3

**Testing:**

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.30...6.40

**CONSTANT REGULATION**

Speed 1/min : 360...450  
compensator (LDA,ADA,ALDA)

**1st version**

Setting  
Speed 1/min : 500  
Pressure hPa : 190  
Contr.-rod trav.mm: 11.00...11.10

**Measurement**

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 10.60...10.70  
2nd pressure hPa : 360  
C-rod trav.mm : 11.70...12.00  
3rd pressure hPa : 800  
C-rod trav.mm : 12.30...12.40

**SWITCH-OVER POINT**

Speed 1/min : 280 (290)

**FUEL-DELIVERY CHARACTERISTICS**

1st version  
Charge press. hPa : 800  
Speed 1/min : 1200  
Del.quantity cm<sup>3</sup>/ : 122.5...126.5  
1000H.: (120.5...128.5)

Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 90.5...92.5  
1000H.: (88.5...94.5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11.40  
Speed 1/min : 1240...1260

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.30...6.40  
Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Remarks:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

G02

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R23  
Edition : 10.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 446 196  
  
Injection pump  
Pump designation : PES6MW100/32ORS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...1200MW46-14  
Governor no. : 0 420 083 145

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 169.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 11.70...11.80  
-----  
Del.quantity cm<sup>3</sup>/ : 10.8...11.0  
-----  
100H.: (10.6...11.2)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.2...6.3  
Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 1350  
Sleeve travel mm: 8.30...8.50  
2nd speed 1/min: 1460  
Sleeve travel mm: 9.10...9.50  
3rd speed 1/min: 550  
Sleeve travel mm: 3.10...3.70  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.70

**SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed 1/min: 1380  
Cont.-rod travelmm: 6.70...9.30

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 800  
Charge press. hPa : 800  
Del.quantity cm<sup>3</sup>/ : 108.0...110.0  
1000H.: (106.0...112.0)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 44...49

**Testing:**

1st c-rod trav.mm : 10.70  
Speed 1/min : 1250...1270  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1365...1375  
4th speed 1/min : 1460  
C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 12...20  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.2

**Testing:**

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.2...6.3

**CONSTANT REGULATION**

Speed 1/min : 360...450  
compensator (LDA,ADA,ALDA)

**1st version**

Setting  
Speed 1/min : 500  
Pressure hPa : 180  
Contr.-rod trav.mm: 11.00...11.10

**Measurement**

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 10.70...10.80  
2nd pressure hPa : 270  
C-rod trav.mm : 11.30...11.40  
3rd pressure hPa : 800  
C-rod trav.mm : 11.70...11.80

**SWITCH-OVER POINT**

Speed 1/min : 280 (290)

**FUEL-DELIVERY CHARACTERISTICS**

**1st version**

Charge press. hPa : 800  
Speed 1/min : 1200  
Del.quantity cm<sup>3</sup>/ : 112.5...116.5  
1000H.: (110.5...118.5)



Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 87.0...89.0  
1000H.: (85.0...91.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 10.70  
Speed 1/min : 1250...1270

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.20...6.30  
Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Remarks:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

G05

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R24  
Edition : 10.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 197

Injection pump  
Pump designation : PES6MW100/32ORS1112  
EP type number : 0 413 406 108  
Governor  
Governor design. : RQV350...1200MW46-15  
Governor no. : 0 420 083 146

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 158.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 11.00...11.10  
-----  
Del.quantity cm3/ : 9.9...10.1  
-----  
100H.: (9.7...10.3)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.2...6.3  
Del.quantity cm3/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1350  
Sleeve travel mm: 8.30...8.50  
2nd speed 1/min: 1460  
Sleeve travel mm: 9.10...9.50  
3rd speed 1/min: 550  
Sleeve travel mm: 3.10...3.70  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.70

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1380  
Cont.-rod travelmm: 6.70...9.30

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 800  
Charge press. hPa : 800  
Del.quantity cm3/ : 99.0...101.0  
1000H.: (97.0...103.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 43...48

#### Testing:

1st c-rod trav.mm : 10.00  
Speed 1/min : 1250...1270  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1355...1365  
4th speed 1/min : 1500  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.2

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.20...6.30

#### CONSTANT REGULATION

Speed 1/min : 360...450

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 500  
Pressure hPa : 200  
Contr.-rod trav.mm: 10.70...10.80

##### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 10.40...10.50  
3rd pressure hPa : 800  
C-rod trav.mm : 11.00...11.10

#### SWITCH-OVER POINT

Speed 1/min : 280 (290)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 800  
Speed 1/min : 1200  
Del.quantity cm3/ : 102.5...106.5  
1000H.: (100.5...108.5)  
Dispersion cm3/ : 6.50  
1000H.: (7.00)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm<sup>3</sup>/ : 84.0...86.0  
1000H.: (82.0...88.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
Imm control-rod travel less than  
full-load trav.mm: 10.00  
Speed 1/min : 1250...1270

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.20...6.30  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Remarks:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 T  
Edition : 10.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 446 198  
Injection pump  
Pump designation : PES6MW100/32ORS1160  
EP type number : 0 413 406 147  
Governor  
Governor design. : RQV350...1200MW46-16  
Governor no. : 0 420 083 147

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 176.4  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 12.60...12.70  
-----  
Del.quantity cm3/ : 12.2...12.4  
-----  
100H.: (12.0...12.6)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.5...6.6  
Del.quantity cm3/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1350  
Sleeve travel mm: 8.30...8.50  
2nd speed 1/min: 1460  
Sleeve travel mm: 9.10...9.50  
3rd speed 1/min: 550  
Sleeve travel mm: 3.10...3.70  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.70

#### SLEEVE POSITION

Control-lever position  
Degree: ~1  
Speed 1/min: 1380  
Cont.-rod travelmm: 6.60...9.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 800  
Charge press. hPa : 800  
Del.quantity cm3/ : 122.0...124.0  
1000H.: (120.0...126.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 44...49

#### Testing:

1st c-rod trav.mm : 11.60  
Speed 1/min : 1260...1280  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1385...1395  
4th speed 1/min : 1500  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 12...20  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.5

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.50...6.60

#### CONSTANT REGULATION

Speed 1/min : 300...450  
compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 800  
Pressure hPa : 180  
Contr.-rod trav.mm: 10.60...10.70

#### Measurement

Speed 1/min : 800  
1st pressure hPa : -  
C-rod trav.mm : 10.30...10.40  
2nd pressure hPa : 480  
C-rod trav.mm : 12.10...12.40  
3rd pressure hPa : 800  
C-rod trav.mm : 12.60...12.70

#### SWITCH-OVER POINT

Speed 1/min : 280 (290)

#### FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 800  
Speed 1/min : 1300  
Del.quantity cm3/ : 126.0...130.0  
1000H.: (124.0...132.0)

Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 800  
Del.quantity cm<sup>3</sup>/ : 83.5...85.5  
1000H.: (81.5...87.5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11.60  
Speed 1/min : 1260...1280

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.50...6.60  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Remarks:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 T 1  
Edition : 10.08.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 403 446 199

Injection pump  
Pump designation : PES6MW100/32ORS1160  
EP type number : 0 413 406 147  
Governor  
Governor design. : RQV350...1200MW46-17  
Governor no. : 0 420 083 148

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 154.5  
Speed 1/min: 2400

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32



Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 11.50...11.60  
-----  
Del.quantity cm3/ : 10.4...10.6  
-----  
100H.: (10.2...10.8)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.3...6.4  
Del.quantity cm3/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

(B) Setting of injection pump with externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 1350  
Sleeve travel mm: 8.30...8.50  
2nd speed 1/min: 1460  
Sleeve travel mm: 9.10...9.50  
3rd speed 1/min: 550  
Sleeve travel mm: 3.10...3.70  
4th speed 1/min: 350  
Sleeve travel mm: 1.30...1.70

**SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed 1/min: 1380  
Cont.-rod travelmm: 6.60...9.40

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 800  
Charge press. hPa : 800  
Del.quantity cm3/ : 104.0...106.0  
1000H.: (102.0...108.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 44...49

**Testing:**

1st c-rod trav.mm : 10.50  
Speed 1/min : 1260...1280  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1375...1385  
4th speed 1/min : 1500  
C-rod trav.mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 10...18  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.3

**Testing:**

Speed 1/min : 100  
C-rod trav.mm min : 9.00  
Speed 1/min : 350  
C-rod trav.mm : 6.30...6.40

**CONSTANT REGULATION**

Speed 1/min : 300...450  
compensator (LDA,ADA,ALDA)

**1st version**

Setting  
Speed 1/min : 500  
Pressure hPa : 190  
Contr.-rod trav.mm: 10.60...10.70

**Measurement**

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 10.20...10.30  
2nd pressure hPa : 290  
C-rod trav.mm : 11.10...11.20  
3rd pressure hPa : 800  
C-rod trav.mm : 11.00...11.10

**SWITCH-OVER POINT**

Speed 1/min : 220 (210)

**FUEL-DELIVERY CHARACTERISTICS**

**1st version**

Charge press. hPa : 800  
Speed 1/min : 1200  
Del.quantity cm3/ : 107.0...111.0  
1000H.: (105.0...113.0)

Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm<sup>3</sup>/ : 75.5...77.5  
1000H.: (73.5...79.5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 10.50  
Speed 1/min : 1260...1280

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.30...6.40  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (13.5...22.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

Remarks:  
Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Before checking sleeve position,  
first adjust latching.

In unlatched condition, do not  
operate greater than  $n = 500$  1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 8,8 F 1  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 403 448 125

Injection pump  
Pump designation : PES8MW100/72ORS1113  
EP type number : 0 413 408 010  
Governor  
Governor design. : RQV250...900MW37-5  
Governor no. : 0 420 083 100

Customer-spec. information  
Customer : PERKINS

Engine : TV8.540M

1st version kW : 160.0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 173...176

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10  
: (2.95...3.15)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 5- 4- 3-  
6- 2

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
270-315

Tolerance + - <sup>o</sup> : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 13.20...13.30

Del.quantity cm<sup>3</sup>/ : 9.9...10.1

100H.: (9.7...10.3)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 7.4...7.5

Del.quantity cm<sup>3</sup>/ : 0.9...1.3

100H.: (0.7...1.6)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 950

Sleeve travel mm: 8.20...8.30

2nd speed 1/min: 1020

Sleeve travel mm: 9.20...9.40

3rd speed 1/min: 600

Sleeve travel mm: 4.40...5.00

4th speed 1/min: 250

Sleeve travel mm: 0.60...1.00

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 965

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm<sup>3</sup>/ : 99.5...101.5

1000H.: (97.5...103.5)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

G16

Control-lever  
position degrees: 60...68

Testing:

1st c-rod trav.mm : 12.20

Speed 1/min : 940...950

2nd c-rod trav.mm : 4.00

Speed 1/min : 1010...1040

4th speed 1/min : 1200

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 7.4

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.00

Speed 1/min : 250

C-rod trav.mm : 7.40...7.50

#### CONSTANT REGULATION

Speed 1/min : 270...500

#### SWITCH-OVER POINT

Speed 1/min : 170 (200)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm<sup>3</sup>/ : 93.5...97.5

1000H.: (91.5...99.5)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.20

Speed 1/min : 940...950

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 90.0...100.0

1000H.: (87.0...103.0)

#### LOW IDLE

Speed 1/min : 250

Contr.-rod trav.mm: 7.40...7.50

Del.quantity cm<sup>3</sup>/ : 9.5...13.5

1000H.: (7.0...16.0)

Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 C 2  
Edition : 21.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 466 103  
Injection pump  
Pump designation : PES6MW100/12ORS1137  
EP type number : 0 413 406 131  
Governor  
Governor design. : RSV375...1100MW2A319  
-2  
Governor no. : 0 420 085 062

Customer-spec. information  
Customer : CDC-USA

Engine : 6 CTA-8.3 L

1st version kW : 188.0  
Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 205...208

Perforated-plate  
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
                  : (3.45...3.65)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1100  
-----  
Contr.-rod trav.mm: 14.10...14.20  
-----  
Del.quantity cm3/ : 14.2...14.4  
-----  
100H.: (14.0...14.6)  
-----  
Dispersion cm3/ : 0.35  
-----  
100H.: (0.6)  
-----

2nd speed 1/min: 425.0  
Contr.-rod trav. m: 7.8...7.9  
Del.quantity cm3/ : 1.9...2.3  
100H.: (1.6...2.5)  
Dispersion cm3/ : 0.35  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1100  
Del.quantity cm3/ : 142.0...144.0  
1000H.: (140.0...146.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 42...50

Testing:  
1st c-rod trav.mm : 13.10  
Speed 1/min : 1140...1150  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1215...1245  
3rd c-rod trav.mm : 0.30...1.70

Speed 1/min : 1300

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 425  
Contr.-rod trav.mm: 7.85

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 425  
C-rod trav.mm : 7.8...7.9

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1100  
C-rod trav.mm : 14.10...14.20  
2nd speed 1/min : 750  
C-rod trav.mm : 14.80...14.90

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750  
Del.quantity cm<sup>3</sup>/ : 148.5...150.5  
1000H.: (146.5...152.5)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 13.10  
Speed 1/min : 1140...1150

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 125.0...145.0  
1000H.: (122.0...148.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 425  
Contr.-rod trav.mm: 7.80...7.90  
Del.quantity cm<sup>3</sup>/ : 19.0...23.0  
1000H.: (16.5...25.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.50)

#### Remarks:

Start-of-delivery mark at 10° cam  
rotation angle after start of delivery,  
cylinder 1  
Starting/full-load transition speed  
from holding magnet = 500 1/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 C3  
Edition : 21.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 466 104  
Injection pump  
Pump designation : PES6MW100/12ORS1137  
EP type number : 0 413 406 131  
Governor  
Governor design. : RSV400...1050MW2A319  
-3  
Governor no. : 0 420 085 074

Customer-spec. information  
Customer : CUMMINS/US

Engine : 6 CTA-8,3 L

1st version kW : 165.0  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 910 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Date of mfg. : 30...32



Prestroke mm : 3,50...3,60  
                  : (3,45...3,65)  
Contr.-rod trav.mm: 9,00...12,00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1050  
-----  
Contr.-rod trav.mm: 12,10...12,20  
-----  
Del.quantity cm3/ : 12,4...12,6  
-----  
                  100H.: (12,2...12,8)  
-----  
Dispersion cm3/ : 0,35  
-----  
                  100H.: (0,60)  
-----  
2nd speed 1/min: 400  
Contr.-rod trav. m: 6,90...7,00  
Del.quantity cm3/ : 1,6...2,0  
                  100H.: (1,3...2,2)  
Dispersion cm3/ : 0,35  
                  100H.: (0,50)

#### SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0,30...1,00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1050  
Del.quantity cm3/ : 124,0...126,0  
                  1000H.: (122,0...128,0)  
Dispersion cm3/ : 3,5  
                  1000H.: (6,0)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 40...48

Testing:  
1st c-rod trav.mm : 11,10  
Speed 1/min : 1090...1100  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1150...1180  
4th speed 1/min : 1250

C-rod trav.mm : 0,30...1,70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 19...27  
Setting point w/out aux. spring  
Speed 1/min : 400  
Contr.-rod trav.mm: 6,95

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19,00  
Speed 1/min : 400  
C-rod trav.mm : 6,90...7,00

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 4,00

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1050  
C-rod trav.mm : 12,10...12,20  
2nd speed 1/min : 750  
C-rod trav.mm : 14,20...14,30

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750  
Del.quantity cm3/ : 151,0...153,0  
                  1000H.: (149,0...155,0)  
Dispersion cm3/ : 5,00  
                  1000H.: (7,00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
  
full-load trav.mm: 11,10  
Speed 1/min : 1090...1100

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 125,0...145,0  
                  1000H.: (122,0...148,0)  
Contr.-rod trav.mm: 19,00...21,00

#### LOW IDLE

Speed 1/min : 400  
Contr.-rod trav.mm: 6,90...7,00  
Del.quantity cm3/ : 16,0...20,0  
                  1000H.: (13,5...22,5)  
Dispersion cm3/ : 3,50  
                  1000H.: (5,50)

#### Remarks:

Start-of-delivery mark at 10<sup>o</sup> cam  
rotation angle after start of delivery,

cylinder 1  
Starting/full-load transition speed  
from holding magnet = 500 1/min.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 C4  
Edition : 21.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 466 105  
Injection pump  
Pump designation : PES6MW100/12ORS1137  
EP type number : 0 413 406 131  
Governor  
Governor design. : RSV400...1100MW2A319  
-4  
Governor no. : 0 420 085 080  
Customer-spec. information  
Customer : CUMMINS/US  
Engine : 6 CTA-8,3 L  
1st version kW : 171.5  
Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 047  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 1 688 901 017  
Opening  
pressure, bar : 207...210  
Perforated-plate  
diameter mm : 0,6  
Test inj. tubing : 1 680 750 008  
Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3,50...3,60  
                  : (3,45...3,65)  
Contr.-rod trav.mm: 9,00...12,00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - ° : 0,50 (0,75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1100  
-----  
Contr.-rod trav.mm: 12,60...12,70  
-----  
Del.quantity cm<sup>3</sup>/ : 13,2...13,4  
-----  
100H.: (13,0...13,6)  
-----  
Dispersion cm<sup>3</sup>/ : 0,30  
-----  
100H.: (0,60)  
-----

2nd speed 1/min: 400  
Contr.-rod trav. m: 7,00...7,10  
Del.quantity cm<sup>3</sup>/ : 1,6...2,0  
100H.: (1,3...2,2)  
Dispersion cm<sup>3</sup>/ : 0,30  
100H.: (0,50)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0,30...1,00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1100  
Del.quantity cm<sup>3</sup>/ : 132,5...134,5  
1000H.: (130,5...136,5)  
Dispersion cm<sup>3</sup>/ : 3,50  
1000H.: (6,00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 40...48

Testing:  
1st c-rod trav.mm : 11,60  
Speed 1/min : 1140...1150  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1200...1230  
4th speed 1/min : 1300

C-rod trav.mm : 0,30...1,70

#### LOWEST RATED SPEED I

Control-lever

position degrees: 16...24

Setting point w/out aux. spring

Speed 1/min : 400

Contr.-rod trav.mm: 7,05

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19,00

Speed 1/min : 400

C-rod trav.mm : 7,00...7,10

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 4,00

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100

C-rod trav.mm : 12,60...12,70

2nd speed 1/min : 750

C-rod trav.mm : 13,70...13,80

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm<sup>3</sup>/ : 141,0...143,0

1000H.: (139,0...145,0)

Dispersion cm<sup>3</sup>/ : 5,00

1000H.: (7,00)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11,60

Speed 1/min : 1140...1150

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 125,0...145,0

1000H.: (122,0...148,0)

Contr.-rod trav.mm: 19,00...21,00

#### LOW IDLE

Speed 1/min : 400

Contr.-rod trav.mm: 7,00...7,10

Del.quantity cm<sup>3</sup>/ : 16,0...20,0

1000H.: (13,5...22,5)

Dispersion cm<sup>3</sup>/ : 3,50

1000H.: (5,50)

Remarks:

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

Starting/full-load transition speed from holding magnet = 500 1/min.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 8,3 E  
Edition : 26.06.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 466 107  
Injection pump  
Pump designation : PES6MW100/12ORS1148  
EP type number : 0 413 406 143  
Governor  
Governor design. : RSV400...900MW7A319-5  
Governor no. : 0 420 085 082

Customer-spec. information  
Customer : CUMMINS/US

Engine : 6 CTA-8.3 L

1st version kW : 196.9  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70  
                  : (3.55...3.75)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 900  
-----  
Contr.-rod trav.mm: 13.00...13.10  
-----  
Del.quantity cm<sup>3</sup>/ : 18.3...18.5  
-----  
100H.: (18.1...18.7)  
-----  
Dispersion cm<sup>3</sup>/ : 0.3  
-----  
100H.: (0.6)  
-----

2nd speed 1/min: 400.0  
Contr.-rod trav. m: 5.9...6.0  
Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
100H.: (1.3...2.2)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 900  
Del.quantity cm<sup>3</sup>/ : 183.0...185.0  
1000H.: (181.5...187.5)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 47...55

Testing:  
1st c-rod trav.mm : 12.00  
Speed 1/min : 940...950  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 965...990  
4th speed 1/min : 1000

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever

position degrees: 18...26

Setting point w/out aux. spring

Speed 1/min : 400

Contr.-rod trav.mm: 5.9

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 400

C-rod trav.mm : 5.90...6.00

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm3/ : 179.0...183.0

1000H.: (177.0...185.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.00

Speed 1/min : 940...950

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 125.0...145.0

1000H.: (122.0...148.0)

Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 400

Contr.-rod trav.mm: 5.90...6.00

Del.quantity cm3/ : 16.0...20.0

1000H.: (13.5...22.5)

Dispersion cm3/ : 3.50

1000H.: (5.50)

#### Remarks:

Start-of-delivery mark 9° cam angle  
after start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4,0 A 18  
Edition : 25.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 474 002  
Injection pump  
Pump designation : PES4MW100/72ORS1127  
EP type number : 0 413 404 103  
Governor  
Governor design. : RSV350...1200MWOA322  
Governor no. : 0 420 085 075

Customer-spec. information  
Customer : DB

Engine : OM 364 A

1st version KW : 66.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>0</sup>CS: 0-90-180-270  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200  
-----  
Contr.-rod trav.mm: 11.70...11.80  
-----  
Del.quantity cm3/ : 7.8...8.0  
-----  
100H.: (7.6...8.2)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 6.8...7.4  
Del.quantity cm3/ : 0.8...1.0  
100H.: (0.6...1.4)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1200  
Del.quantity cm3/ : 78.0...80.0  
1000H.: (76.0...82.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 52...60

## Testing:

1st c-rod trav.mm : 10.70  
Speed 1/min : 1240...1245  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1322...1335  
3rd c-rod trav.mm : 4.00  
Speed 1/min : 1345...1375  
4th speed 1/min : 1450  
C-rod trav.mm : 0.30...1.70

## LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 350  
Contr.-rod trav.mm: 7.1

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.80...7.40  
C-rod trav.mm : 2.00  
Speed 1/min : 500...560

TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1200  
C-rod trav.mm : 11.70...11.80  
2nd speed 1/min : 600  
C-rod trav.mm : 12.60...12.80  
3rd speed 1/min : 700  
C-rod trav.mm : 12.60...12.80  
4th speed 1/min : 950  
C-rod trav.mm : 12.20...12.40

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm<sup>3</sup>/ : 68.0...70.0  
1000H.: (66.0...72.0)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)  
Speed 1/min : 900  
Del.quantity cm<sup>3</sup>/ : 77.0...79.0  
1000H.: (75.0...81.0)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 10.70  
Speed 1/min : 1240...1245

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 85.0...95.0  
1000H.: (82.0...98.0)

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.80...7.40  
Del.quantity cm<sup>3</sup>/ : 8.0...10.0  
1000H.: (6.0...14.0)  
Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.00)

Remarks:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D  
Edition : 25.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 476 029  
  
Injection pump  
Pump designation : PES6MW100/72ORS1124  
EP type number : 0 413 406 118  
Governor  
Governor design. : RSV350...1200MW1A316  
-1  
Governer no. : 0 420 085 048  
  
Customer-spec. information  
Customer : DB  
  
Engine : OM 366 A  
  
1st version kW : 110.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 000  
  
Inlet press., bar : 1.50  
  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test inj. tubing : 1 680 750 008  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600  
  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----  
  
START OF DELIVERY  
Test pressure, bar: 30...32  
  
Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200  
-----  
Contr.-rod trav.mm: 9.80...9.90  
-----  
Del.quantity cm3/ : 7.6...7.8  
-----  
100H.: (7.4...8.0)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 6.4...7.0  
Del.quantity cm3/ : 1.0...1.2  
100H.: (0.8...1.4)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00  
  
Governor-spring reload  
Notch setting x : 4.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1200  
Del.quantity cm3/ : 76.0...78.0  
1000H.: /74.0...80.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 52...60  
  
Testing:  
1st c-rod trav.mm : 8.80  
Speed 1/min : 1240...1245  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1280...1293  
3rd c-rod trav.mm : 4.00  
Speed 1/min : 1300...1330  
4th speed 1/min : 1360

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

Setting point w/out aux. spring

Speed 1/min : 2.00

Contr.-rod trav.mm: 465...525

#### SET IDLE AUXILIARY SPRING

Speed 1/min : 350

Contr.-rod trav.mm: 6.40...7.00

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 9.90...10.10

2nd speed 1/min : 750

C-rod trav.mm : 10.60...10.70

3rd speed 1/min : 950

C-rod trav.mm : 10.30...10.40

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 66.0...68.0

1000H.: (64.0...70.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Speed 1/min : 900

Del.quantity cm3/ : 76.0...78.0

1000H.: (73.0...81.0)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 8.80

Speed 1/min : 1240...1245

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 6.40...7.00

Del.quantity cm3/ : 10.0...12.0

1000H.: (8.00...14.0)

Dispersion cm3/ : 3.50

1000H.: (5.00)

Remarks:

H02

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 P 4  
Edition : 24.08.87  
Superceeded : 11.85  
Calibrating oil : ISO-4113  
Combination no. : 0 403 476 030  
Injection pump  
Pump designation : PES6MW100/32ORS1109  
EP type number : 0 413 406 104  
Governor  
Governor design. : RSV350...1250MW2/313  
-3  
Governor no. : 0 420 085 049

Customer-spec. information  
Customer : NAVI-STAR

Engine : DTI-466 C

1st version kW : 160.0  
Speed 1/min: 2500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

H03

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 800  
-----  
Contr.-rod trav.mm: 13.40...13.50  
-----  
Del.quantity cm3/ : 11.6...11.8  
-----  
100H.: (11.4...12.0)  
-----  
Dispersion cm3/ : 0.35  
-----  
100H.: (0.6)  
-----

2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.3...6.4  
Del.quantity cm3/ : 1.8...2.3  
100H.: (1.6...2.5)  
Dispersion cm3/ : 0.35  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 800  
Charge press. hPa : 900  
Del.quantity cm3/ : 116.5...118.5  
1000H.: (114.5...120.5)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 52...57

Testing:  
1st c-rod trav.mm : 11.20  
Speed 1/min : 1290...1300  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1390...1400

3rd c-rod trav.mm : 0.30...1.70  
Speed 1/min : 1470

LOWEST RATED SPEED I

Control-lever  
position degrees: 20...28  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.35

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.3...6.4

SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 4.00

TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 800  
C-rod trav.mm : 13.40...13.50  
2nd speed 1/min : 1250  
C-rod trav.mm : 12.20...12.30  
3rd speed 1/min : 840  
C-rod trav.mm : 13.40...13.50  
4th speed 1/min : 1200  
C-rod trav.mm : 12.20...12.30

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 13.40...13.50

Measurement

Speed 1/min : 500  
1st pressure hPa : 490  
C-rod trav.mm : 12.70...13.00  
2nd pressure hPa : 200  
C-rod trav.mm : 11.80...11.90  
3rd pressure hPa : -  
C-rod trav.mm : 11.40...11.50

FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 900  
Speed 1/min : 1250  
Del.quantity cm3/ : 105.0...107.0  
1000H.: (103.0...109.0)  
Dispersion cm3/ : 6.50  
1000H.: (7.00)  
Charge press. hPa : -

H04

Speed 1/min : 500  
Del.quantity cm3/ : 82.0...84.0  
1000H.: (79.0...87.0)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11.20  
Speed 1/min : 1290...1300

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...180.0  
1000H.: (137.0...183.0)

Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Starting/full-load transition speed  
from holding magnet = 500 1/min.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Check hydraulic latching of starting  
fuel delivery with 1.5 bar air.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEN 6,1 P  
Edition : 20.08.87  
Superceeded : 11.85  
Calibrating oil : ISO-4113

Combination no. : 0 403 476 046

Injection pump  
Pump designation : PES6MW100/32ORS1132  
EP type number : 0 413 406 124  
Governor  
Governor design. : RSV325...1400MW2A314  
Governor no. : 0 420 085 053

Customer-spec. information  
Customer : VOLVO-PENTA

Engine : TD 61 A

1st version kW : 147.0  
Speed 1/min: 2800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 2.00X6.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.90...3.00  
: (2.85...3.05)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1000  
-----  
Contr.-rod trav.mm: 10.90...11.00  
-----  
Del.quantity cm3/ : 8.7...8.9  
-----  
100H.: (8.5...9.1)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 325  
Contr.-rod trav. m: 6.0...6.1  
Del.quantity cm3/ : 1.2...1.6  
100H.: (0.9...1.8)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

#### SLEEVE POSITION

Control-lever position  
Degree: 3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1000  
Charge press. hPa : 900  
Del.quantity cm3/ : 87.0...89.0  
1000H.: (85.0...91.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 54...62

Testing:  
1st c-rod trav.mm : 10.00  
Speed 1/min : 1440...1450  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1520...1540  
4th speed 1/min : 1650  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 18...26

Setting point w/out aux. spring  
Speed 1/min : 325  
Contr.-rod trav.mm: 5.5

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 325  
C-rod trav.mm : 5.50...5.60

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 220  
Contr.-rod trav.mm: 10.00...10.10

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
C-rod trav.mm : 9.80...9.90  
2nd pressure hPa : 330  
C-rod trav.mm : 10.20...10.50  
3rd pressure hPa : 900  
C-rod trav.mm : 10.90...11.00

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 50.0...52.0  
1000H.: (48.0...54.0)

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0  
1000H.: (137.0...163.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 325  
Contr.-rod trav.mm: 6.00...6.10  
Del.quantity cm3/ : 12.0...16.0  
1000H.: (9.5...18.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 7,6 R16  
Edition : 24.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 476 050  
Injection pump  
Pump designation : PES6MW100/32ORS1121  
EP type number : 0 413 406 115  
Governor  
Governor design. : RSV500...1250MW2A312  
-6  
Governor no. : 0 420 085 063

Customer-spec. information  
Customer : NAVI-STAR

Engine : DT-466 C

1st version kW : 160.3  
Speed 1/min: 2500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Calibrating nozzle-holder  
assembly : 1 688 901 016

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.5

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

H09

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
                          0.50 (.075)

## BASIC SETTING

1st speed 1/mi: 950  
-----  
Contr.-rod trav.mm: 11.80...11.90  
-----  
Del.quantity cm3/ : 10.8...11.0  
-----  
                          100H.: (10.6...11.2)  
-----  
Dispersion cm3/ : 0.35  
-----  
                          100H.: (0.6)  
-----

2nd speed 1/min: 500  
Contr.-rod trav. m: 6.2...6.3  
Del.quantity cm3/ : 1.8...2.2  
                          100H.: (1.3...2.6)  
Dispersion cm3/ : 0.35  
                          100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 950  
Del.quantity cm3/ : 108.0...110.0  
                          1000H.: (106.0...112.0)  
Dispersion cm3/ : 3.50  
                          1000H.: (6.00)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 49...54

Testing:  
1st c-rod trav.mm : 10.60  
Speed 1/min : 1295...1305  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1365...1375  
3rd c-rod trav.mm : 0.30...1.70  
Speed 1/min : 1400

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 22...30  
Setting point w/out aux. spring  
Speed 1/min : 500  
Contr.-rod trav.mm: 6.25

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 500  
C-rod trav.mm : 6.2...6.3

#### SET IDLE AUXILIARY SPRING

Contr.-rod trav.mm: 4.00

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1250  
Del.quantity cm<sup>3</sup>/ : 107.0...111.0  
1000H.: (105.0...113.0)  
Dispersion cm<sup>3</sup>/ : 6.50  
1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10.60  
Speed 1/min : 1295...1305

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000H.: (137.0...183.0)

#### Remarks:

Perform pump setting only with IH hose  
with restriction of 1.2 mm diameter.

Starting/full-load transition speed  
from holding magnet = 500 1/min.

Start-of-delivery mark: stop lever  
25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Start-of-delivery mark: stop lever

H10

25° toward shutoff: control-rod  
travel = 9...12 mm. (Free travel of  
stop lever must have been overcome  
beforehand.)

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Position idle auxiliary spring to make  
contact, then turn back 1/4 rotation



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 22  
Edition : 25.08.87  
Superceeded : 09.03.87  
Calibrating oil : ISO-4113  
Combination no. : 0 403 476 054  
Injection pump  
Pump designation : PES6MW100/72ORS1139  
EP type number : 0 413 406 134  
Governor  
Governor design. : RSV350...1200MW1A316  
-2  
Governor no. : 0 420 085 076

Customer-spec. information  
Customer : DB

Engine : OM 366 A

1st version kW : 115.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172..175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 11.80...11.90

Del.quantity cm3/ : 8.3...8.5

100H.: (8.1...8.7)

Dispersion cm3/ : 0.35

100H.: (0.6)

2nd speed 1/min: 350

Contr.-rod trav. m: 7.0...7.6

Del.quantity cm3/ : 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/ : 0.35

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 83.0...85.0

1000H.: (81.0...87.0)

Dispersion cm3/ : 3.5

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 64...72

Testing:

1st c-rod trav.mm : 10.80

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1285...1298

3rd c-rod trav.mm : 4.00

Speed 1/min : 1335...1365

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 7.3

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 350

C-rod trav.mm : 7.00...7.60

C-rod trav.mm : 2.00

Speed 1/min : 515...585

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1200

C-rod trav.mm : 11.80...11.90

2nd speed 1/min : 750

C-rod trav.mm : 12.30...12.40

3rd speed 1/min : 1000

C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm<sup>3</sup>/ : 81.0...83.0

1000H.: (79.0...85.0)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.80

Speed 1/min : 1240...1245

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 80.0...90.0

1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 7.00...7.60

Del.quantity cm<sup>3</sup>/ : 10.0...12.0

1000H.: (7.0...15.0)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6 0 D 31  
Edition : 31.07.87  
Superceeded : 13.05.87  
Calibrating oil : ISO-4113  
Combination no. : 0 403 476 054  
Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0 413 406 138  
Governor  
Governor design. : RSV350...1200MW1A316  
-2  
Governor no. : 0 420 085 076

Customer-spec. information  
Customer : DB

Engine : OM366A

1st version kW : 115.0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 11.80...11.90

Del.quantity cm3/ : 8.3...8.5

100H.: (8.1...8.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 7.0...7.6

Del.quantity cm3/ : 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 83.0...85.0

1000H.: (81.0...87.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 63...71

Testing:

1st c-rod trav.mm : 10.80

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1285...1298

3rd c-rod trav.mm : 4.00

Speed 1/min : 1335...1365

4th speed 1/min : 1450

C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 7.3

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 350

C-rod trav.mm : 7.00...7.60

C-rod trav.mm : 2.00

Speed 1/min : 515...585

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1200

C-rod trav.mm : 11.80...11.90

2nd speed 1/min : 750

C-rod trav.mm : 12.30...12.40

3rd speed 1/min : 1000

C-rod trav.mm : 11.90...12.10

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm3/ : 81.0...83.0

1000H.: (79.0...85.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.80

Speed 1/min : 1240...1245

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 80.0...90.0

1000H.: (77.0...93.0)

Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 7.00...7.60

Del.quantity cm3/ : 10.0...12.0

1000H.: (7.0...15.0)

Dispersion cm3/ : 3.50

1000H.: (5.00)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 33  
Edition : 31.07.87  
Superceeded : 05.06.87  
Calibrating oil : ISO-4113  
Combination no. : 0 403 476 056  
Injection pump  
Pump designation : PES6MW100/72ORS1144  
EP type number : 0 413 406 138  
Governor  
Governor design. : RSV350...1200MW1A316  
-4  
Governor no. : 0 420 085 078

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM366A

1st version kW : 100,0  
Speed 1/min: 2400

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3,70...3,80  
: (3,65...3,85)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1200

Contr.-rod trav.mm: 10.00...10.10

Del.quantity cm3/ : 7.5...7.7

100H.: (7.3...7.9)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.1...6.7

Del.quantity cm3/ : 1.0...1.2

100H.: (0.7...1.5)

Dispersion cm3/ : 0.3

100H.: (0.5)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 3.50

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1200

Del.quantity cm3/ : 75.0...77.0

1000H.: (73.0...79.0)

Dispersion cm3/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 10.5

Speed 1/min : 1240...1245

2nd c-rod trav.mm : 4.00

Speed 1/min : 1271...1284

3rd c-rod trav.mm : 4.00

Speed 1/min : 1290...1320

4th speed 1/min : 1450

G-rod trav.mm : 0.30...1.70  
5th speed 1/min : 1240...1255  
C-rod trav.mm : 9.00

Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (5.00)

Remarks:

#### LOWEST RATED SPEED I

Control-lever  
position degrees: -  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 6.4

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 6.10...6.70  
C-rod trav.mm : 2.00  
Speed 1/min : 415...475

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1200  
C-rod trav.mm : 10.00...10.10  
2nd speed 1/min : 800  
C-rod trav.mm : 10.90...11.00  
3rd speed 1/min : 900  
C-rod trav.mm : 10.90...11.00  
4th speed 1/min : 1050  
C-rod trav.mm : 10.30...10.50

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del.quantity cm<sup>3</sup>/ : 73.0...75.0  
1000H.: (71.0...78.0)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 10.5  
Speed 1/min : 1240...1245

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 80.0...90.0  
1000H.: (77.0...93.0)  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6.10...6.70  
Del.quantity cm<sup>3</sup>/ : 10.0...12.0  
1000H.: (7.0...15.0)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 D 35  
Edition : 31.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 0 403 476 059  
  
Injection pump  
Pump designation : PES6MW100/72ORS1130  
EP type number : 0 413 406 122  
Governor  
Governor design. : RSV300...125OMWOA32S  
Governor no. : 0 420 085 083

Customer-spec. information  
Customer : DB

Engine : OM 366 A

1st version kW : 125.0  
Speed 1/min: 2500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness : 6.00x2.00x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1230  
-----  
Contr.-rod trav.mm: 11.50...11.60  
-----  
Del.quantity cm3/ : 8.2...8.4  
-----  
100H.: (8.0...8.6)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 575.0  
Contr.-rod trav. m: 4.7...4.8  
Del.quantity cm3/ : 1.0...1.4  
100H.: (0.8...1.6)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

#### SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1230  
Del.quantity cm3/ : 82.0...84.0  
1000H.: (80.0...86.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 46...54

#### Testing:

1st c-rod trav.mm : 10.50  
Speed 1/min : 1250...1260  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1280...1310  
4th speed 1/min : 1350  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 24...32  
Setting point w/out aux. spring

Speed 1/min : 575  
Contr.-rod trav.mm: 4.7

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 575  
C-rod trav.mm : 4.70...4.80

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 67.5...71.5  
1000H.: (65.5...73.5)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10.50  
Speed 1/min : 1250...1260

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 80.0...90.0  
1000H.: (77.0...93.0)

#### LOW IDLE

Speed 1/min : 575  
Contr.-rod trav.mm: 4.70...4.80  
Del.quantity cm3/ : 10.0...14.0  
1000H.: (8.0...16.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.00)

Remarks:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : KHD 13,4 A  
 Edition : 20.08.87  
 Superceeded : 12.85  
 Calibrating oil : ISO-4113

Combination no. : 0 403 548 007

Injection pump  
 Pump designation : PE8MW100/720LS1118  
 EP type number : 0 413 508 102  
 Governor  
 Governor design. : RQV300...1150MW56  
 Governor no. : 0 420 083 075

Customer-spec. information  
 Customer : KHD

Engine : BF8L513

1st version kW : 222.0  
 Speed 1/min: 2300

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
 : (3.05...3.25)

Contr.-rod trav.,mm: 9.00...12.00

H2O

Cam sequence : 1- 8- 7- 2- 6- 5-  
 4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 1150

Contr.-rod trav.,mm: 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 12.9...13.1

100H.: (12.7...13.3)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 6.9...7.0

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100H.: (1.3...2.2)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1175

Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1150

Charge press. hPa : 800

Del. quantity cm<sup>3</sup>/ : 129.0...131.0

1000H.: (127.0...133.0)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 51...59

Testing:

1st c-rod trav.,mm : 11.10

Speed 1/min : 1190...1200

2nd c-rod trav.,mm : 4.00

Speed 1/min : 1280...1310

4th speed 1/min : 1400

C-rod trav.,mm : 0.00...1.00

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 18...26  
Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 6.9  
C-rod trav.mm min : 8.50  
Speed 1/min : 300  
C-rod trav.mm : 6.90...7.00

CONSTANT REGULATION  
Speed 1/min : 330...400

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 12.10...12.20  
2nd speed 1/min : 700  
C-rod trav.mm : 12.50...12.60  
3rd speed 1/min : 900  
C-rod trav.mm : 12.30...12.40

compensator (LDA,ADA,ALDA)

1st version  
Setting  
Speed 1/min : 500  
Pressure hPa : 360  
Contr.-rod trav.mm: 12.20...12.30

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 11.40...11.50  
2nd pressure hPa : 260  
C-rod trav.mm : 11.70...12.00  
3rd pressure hPa : 800  
C-rod trav.mm : 12.50...12.60

SWITCH-OVER POINT

Speed 1/min : 230 (250)

FUEL-DELIVERY CHARACTERISTICS

1st version  
Charge press. hPa : 800  
Speed 1/min : 700  
Del.quantity cm3/ : 133.0...135.0  
1000H.: (131.0...137.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 450  
Del.quantity cm3/ : 104.0...106.0  
1000H.: (101.5...108.5)

ROTATIONAL-SPEED LIMITATION

H21

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11.10  
Speed 1/min : 1190...1200

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...150.0  
1000H.: (137.0...153.0)

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 6.90...7.00  
Del.quantity cm3/ : 16.00...20.00  
1000H.: (13.5...22.5)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13,4 D4  
Edition : 20.08.87  
Superceeded : 11.85  
Calibrating oil : ISO-4113

Combination no. : 0 403 548 014

Injection pump  
Pump designation : PE8MW100/72OLS1128  
EP type number : 0 413 508 103  
Governor  
Governor design. : RQ300...115DMW63-2  
Governor no. : 0 420 082 019

Customer-spec. information  
Customer : KHD

Engine : BF8L513

1st version kW : 235.0  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20  
: (3.05...3.25)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 8- 7- 2- 6- 5-  
4- 3

SD ang. spacing<sup>o</sup>CS: 0-45-90-135-180-225-  
270-315

Tolerance + - <sup>o</sup> : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1150

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm<sup>3</sup>/ : 14.1...14.3

100H.: (13.9...14.5)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 7.7...7.8

Del.quantity cm<sup>3</sup>/ : 1.3...1.7

100H.: (1.1...1.9)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 1280

Sleeve travel mm: 9.00...9.8

2nd speed 1/min: 1150

Sleeve travel mm: 6.60...6.80

3rd speed 1/min: 650

Sleeve travel mm: 5.80...6.20

4th speed 1/min: 300

Sleeve travel mm: 1.20...2.00

#### SLEEVE POSITION

Control-lever position

Degree: -2

Speed 1/min: 600

Contr.-rod travelmm: 19.20...20.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1150

Charge press. hPa : 900

Del.quantity cm<sup>3</sup>/ : 141.0...143.0

1000H.: (139.0...145.0)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

#### HIGHEST RATED SPEED

H23

1st version

Control-lever

position degrees: 34...42

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20.0

Testing:

1st c-rod trav.mm : 13.00

Speed 1/min : 1190...1200

2nd c-rod trav.mm : 4.00

Speed 1/min : 1285...1315

4th speed 1/min : 1370

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 7.7

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.30

Speed 1/min : 300

C-rod trav.mm : 7.70...7.80

#### CONSTANT REGULATION

Speed 1/min : 330...400

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1150

C-rod trav.mm : 13.90...14.00

2nd speed 1/min : 700

C-rod trav.mm : 14.90...15.00

3rd speed 1/min : 950

C-rod trav.mm : 14.20...14.50

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 480

Contr.-rod trav.mm: 14.40...14.50

Measurement

Speed 1/min : 500

1st pressure hPa : 900

C-rod trav.mm : 14.90...15.00

2nd pressure hPa : -

C-rod trav.mm : 12.70...12.80

3rd pressure hPa : 330

C-rod trav.mm : 13.20...13.50

## FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900  
Speed 1/min : 700  
Del. quantity cm3/ : 153.0...155.0  
1000H.: (151.0...157.0)  
Dispersion cm3/ : 5.00  
1000H.: (7.00)  
Charge press. hPa : -  
Speed 1/min : 450  
Del. quantity cm3/ : 107.0...109.0  
1000H.: (105.0...111.0)

## STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm3/ : 135.0...155.0  
1000H.: (132.0...158.0)

## LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 7.70...7.80  
Del. quantity cm3/ : 13.0...17.0  
1000H.: (11.0...19.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

## Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 13,4 D9  
Edition : 24.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 403 548 019  
Injection pump  
Pump designation : PE8MW100/72OLS1118  
EP type number : 0 413 508 102  
Governor  
Governor design. : RQV425...900MW76  
Governor no. : 0 420 083 114

Customer-spec. information  
Customer : KHD

Engine : BF8L513

1st version kW : 160,0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 740 014

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3,10...3,20  
                  : (3,05...3,25)

Contr.-rod trav. mm: 9,00...12,00

Cam sequence : 1- 8- 7- 2- 6- 5-  
                  4- 3

SD ang. spacing°CS: 0-45-90-135-180-225-  
                          270-315  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav. mm: 11.00...11.10

Del. quantity cm<sup>3</sup>/ : 10.3...10.5

100H.: (10.1...10.7)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 425.0

Contr.-rod trav. m: 6.0...6.1

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100H.: (1.1...1.9)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 950

Sleeve travel mm: 8.70...8.80

2nd speed 1/min: 1000

Sleeve travel mm: 9.70...10.10

3rd speed 1/min: 600

Sleeve travel mm: 3.90...4.50

4th speed 1/min: 425

Sleeve travel mm: 1.60...2.00

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 925

Cont.-rod travel mm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del. quantity cm<sup>3</sup>/ : 103.0...105.0

1000H.: (101.0...107.0)

Dispersion cm<sup>3</sup>/ : 3.50

1000H.: (6.00)

## HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 51...59

Testing:

1st c-rod trav.mm : 10.00  
Speed 1/min : 940...950  
2nd c-rod trav.mm : 4.50  
Speed 1/min : 985...1015

LOWEST RATED SPEED I

Control-lever  
position degrees: 20...28  
Setting point w/out aux. spring  
Speed 1/min : 425  
Contr.-rod trav.mm: 6.05  
Speed 1/min : 425  
C-rod trav.mm : 6.00...6.10

CONSTANT REGULATION

Speed 1/min : 435...520

TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 900  
C-rod trav.mm : 11.00...11.10  
2nd speed 1/min : 600  
C-rod trav.mm : 11.60...11.70  
3rd speed 1/min : 750  
C-rod trav.mm : 11.20...11.50

SWITCH-OVER POINT

Speed 1/min : 360 (400)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm<sup>3</sup>/ : 109.0...111.0  
1000H.: (107.5...113.0)  
Dispersion cm<sup>3</sup>/ : 5.00  
1000H.: (7.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.00  
Speed 1/min : 940...950

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...150.0  
1000H.: (137.0...153.0)

LOW IDLE

Speed 1/min : 425  
Contr.-rod trav.mm: 6.00...6.10

Del.quantity cm<sup>3</sup>/ : 13.0...17.0  
1000H.: (11.0...19.0)  
Dispersion cm<sup>3</sup>/ : 3.5  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 5,9 B  
Edition : 24.07.87  
Superceeded : 4.85  
Calibrating oil : ISO-4113

Combination no. : 9 400 085 246

Injection pump  
Pump designation : PES6A90D32ORS2705  
EP type number : 9 400 083 098  
Governor  
Governor design. : RSV350...1400A2B2179  
-1R

Governor no. : 9 420 083 196

Customer-spec. information  
Customer : MWM

Engine : A 229-6 PID

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 003

Outside diameter  
x Wall thickness  
x Length mm : 6,30x0,60x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4



SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

### BASIC SETTING

1st speed 1/min: 1400  
-----

Contr.-rod trav.mm: 10.30...10.40  
-----

Del.quantity cm<sup>3</sup>/ : 8.5...8.6  
-----

100H.: (8.3...8.8)  
-----

Dispersion cm<sup>3</sup>/ : 0.3  
-----

100H.: (0.5)  
-----

2nd speed 1/min: 325

Contr.-rod trav. m: 6.40...6.60

Del.quantity cm<sup>3</sup>/ : 1.3...1.7

100H.: (1.1...1.9)

Dispersion cm<sup>3</sup>/ : 0.2

100H.: (0.4)

### SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...1.00

Governor-spring reload

Notch setting x : 4.50

### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1400

Charge press. hPa : -

Del.quantity cm<sup>3</sup>/ : 85.5...86.5

1000H.: (85.5...88.5)

Dispersion cm<sup>3</sup>/ : 3.00

1000H.: (5.00)

### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 9.30

Speed 1/min : 1440...1450

2nd c-rod trav.mm : 4.00

Speed 1/min : 1515...1545

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1600

C-rod trav.mm : 0.30...1.70

H28

### LOWEST RATED SPEED I

Control-lever

position degrees: 14...22

Setting point w/out aux. spring

Speed 1/min : 325

Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.00

Speed 1/min : 325

C-rod trav.mm : 6.50

C-rod trav.mm : 2.00

Speed 1/min : 430...490

### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1400

C-rod trav.mm : 10.30...10.40

2nd speed 1/min : 500

C-rod trav.mm : 11.00...11.10

4th speed 1/min : 900

C-rod trav.mm : 10.70...11.00

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500

Del.quantity cm<sup>3</sup>/ : 87.0...89.0

1000H.: (84.5...91.5)

Speed 1/min : 900

Del.quantity cm<sup>3</sup>/ : 90.0...92.0

1000H.: (87.5...94.5)

### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.30

Speed 1/min : 1440...1450

### STARTING FUEL DELIVERY

Speed 1/min : 100

Contr.-rod trav.mm: 19.00...21.00

### LOW IDLE

Speed 1/min : 325

Contr.-rod trav.mm: 4.00...4.50

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : FOR 6,6 A3  
 Edition : 27.8.87  
 Superceeded : 2.86  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 085 263  
 Injection pump  
 Pump designation : PES6A95D41ORS2688  
 EP type number : 9 400 083 090  
 Governor  
 Governor design. : RQV350...1400AB1202-  
 1L  
 Governor no. : 9 420 080 220

Customer-spec. information  
 Customer : FORD (FT0)

Engine : 6,6 1 NA

1st version kW : 103,0  
 Speed 1/min: 2800

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 3,15...3,25  
 : (3,10...3,30)

J02

Contr.-rod trav.mm: 9,00...12,00  
 Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

**START OF DELIVERY DIFFERENCE**

betw.c-rod trav.mm: 9,00...12,00  
 & c-rod trav max. : 21,00  
 Difference ° CS : 2,00...3,00

**BASIC SETTING**

1st speed 1/mi: 1400

Contr.-rod trav.mm: 10,10...10,20

Del.quantity cm3/ : 7,0...7,2

100H.: (6,8...7,4)

Dispersion cm3/ : 0,35

100H.: (0,60)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,40...6,60

Del.quantity cm3/ : 0,7...1,1

100H.: (0,5...1,3)

Dispersion cm3/ : 0,35

100H.: (0,55)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 350

Sleeve travel mm: 1,30...1,60

2nd speed 1/min: 700

Sleeve travel mm: 4,20...4,60

3rd speed 1/min: 1100

Sleeve travel mm: 6,10...6,40

4th speed 1/min: 1400

Sleeve travel mm: 8,50...8,60

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1420

Cont.-rod travelmm: 15,20...17,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1400

Del. quantity cm<sup>3</sup>/ : 70,5...72,5  
1000H.: (68,5...74,5)  
Dispersion cm<sup>3</sup>/ : 3,5  
1000H.: (6,0)

Del. quantity cm<sup>3</sup>/ : 7,0...11,0  
1000H.: (5,0...13,0)  
Dispersion cm<sup>3</sup>/ : 3,5  
1000H.: (5,5)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 59...57

Remarks:

#### Testing:

1st c-rod trav.mm : 9,10  
Speed 1/min : 1440...1450  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1540...1570  
4th speed 1/min : 1700  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 10...18

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9,00  
Speed 1/min : 350  
C-rod trav.mm : 6,40...6,60  
C-rod trav.mm : 2,00  
Speed 1/min : 540...600

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 800  
Del. quantity cm<sup>3</sup>/ : 60,0...63,0  
1000H.: (57,5...65,5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 9,10  
Speed 1/min : 1440...1450

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 112,0...122,0  
1000H.: (-)  
Contr.-rod trav.mm: 19,0...21,0

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6,40...6,60

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 H  
Edition : 21.05.87  
Superceeded : 6.86  
Calibrating oil : ISO-4113

Combination no. : 9 400 085 265

Injection pump  
Pump designation : PES6A95D41ORS2722  
EP type number : 9 400 084 004  
Governor  
Governor design. : RQV350...1300AB1220L  
Governor no. : 9 420 080 223

Customer-spec. information  
Customer : FORD NEW HOLLAND

Engine : 6.6 1 TC

1st version kW : 119.3  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25  
                  : (3.10...3.30)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 10.20...10.30

Del.quantity cm<sup>3</sup>/ : 7.5...7.7

100H.: (7.3...7.9)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm<sup>3</sup>/ : 1.1...1.5

100H.: (0.9...1.7)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.20...1.50

2nd speed 1/min: 550

Sleeve travel mm: 3.00...3.30

3rd speed 1/min: 1000

Sleeve travel mm: 5.80...6.20

4th speed 1/min: 1340

Sleeve travel mm: 8.50...8.60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1340

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 700

Del.quantity cm<sup>3</sup>/ : 75.0...77.0

1000H.: (73.0...79.0)

J05

Dispersion cm<sup>3</sup>/ : 3.50  
1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 58...66

Testing:

1st c-rod trav.mm : 9.20

Speed 1/min : 1360...1370

2nd c-rod trav.mm : 4.00

Speed 1/min : 1430...1460

4th speed 1/min : 1600

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 8...16

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.50

Speed 1/min : 350

C-rod trav.mm : 4.90...5.10

C-rod trav.mm : 2.00

Speed 1/min : 490...550

#### CONSTANT REGULATION

Speed 1/min : 370...440

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 10.20...10.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 9.20...9.30

2nd pressure hPa : 450

C-rod trav.mm : 9.80...10.00

3rd pressure hPa : 360

C-rod trav.mm : 9.40...9.50

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 800

Del.quantity cm3/ : 62.0...65.0  
1000H.: (60.5...66.5)  
Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : 53.0...55.0  
1000H.: (51.0...57.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 9.20  
Speed 1/min : 1360...1370

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 150.0...170.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 4.90...5.10  
Del.quantity cm3/ : 11.0...15.0  
1000H.: (9.0...17.0)  
Dispersion cm3/ : 3.50  
1000H.: (5.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM 3,9 D  
Edition : 24.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 085 272  
Injection pump  
Pump designation : PES4A90D320RS2744  
EP type number : 9 400 084 012  
Governor  
Governor design. : RSV350...1300A2B2215  
-2R  
Governor no. : 9 420 083 234  
Customer-spec. information  
Customer : MWM  
Engine : TD 229-4

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 046  
Inlet press., bar : 1.00  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 014  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 2.70...2.80  
: (2.65...2.85)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + -<sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

#### START OF DELIVERY DIFFERENCE

betw.c-rod trav.mm: 9.00...12.00  
& c-rod tray max. : 21.00  
Difference<sup>o</sup> CS : 3.00...4.00

#### BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 10.60...10.70  
-----  
Del.quantity cm3/ : 8.9...9.0  
-----  
100H.: (8.7...9.2)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.5)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 4.90...5.10  
Del.quantity cm3/ : 1.1...1.5  
100H.: (0.9...1.7)  
Dispersion cm3/ : 0.2  
100H.: (0.4)

#### SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0.30...1.00

Governor-spring reload  
Notch setting x : 5.75

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Del.quantity cm3/ : 89.0...90.0  
1000H.: (87.0...92.0)  
Dispersion cm3/ : 3.00  
1000H.: (5.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 24...32

Testing:  
1st c-rod trav.mm : 9.60  
Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00  
Speed 1/min : 1410...1440  
3rd c-rod trav.mm : 4.00  
4th speed 1/min : 1600  
C-rod trav.mm : 0.30...1.70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 55...63  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 4.5

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 5.00  
C-rod trav.mm : 2.00  
Speed 1/min : 540...600

#### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1300  
C-rod trav.mm : 10.60...10.70  
2nd speed 1/min : 500  
C-rod trav.mm : 11.20...11.30  
3rd speed 1/min : 800  
C-rod trav.mm : 10.90...11.20  
4th speed 1/min : 900  
C-rod trav.mm : 10.80...10.90

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 87.0...89.0  
1000H.: (84.5...91.5)  
Speed 1/min : 900  
Del.quantity cm3/ : 89.0...91.0  
1000H.: (86.5...93.5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 9.60  
Speed 1/min : 1340...1350

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Contr.-rod trav.mm: 19.00...21.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 4.90...5.10  
Del.quantity cm3/ : 11.0...15.0  
1000H.: (9.0...17.0)



Dispersion cm<sup>3</sup>/ : 2.50  
1000H.: (4.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 6,0 E  
Edition : 24.07.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 9 400 085 288

Injection pump  
Pump designation : PES6A90D410RS2596-1  
EP type number : 9 400 084 008  
Governor  
Governor design. : RQV300...1300AB1066-  
3L  
Governor no. : 9 420 080 230

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 366 A

1st version kW : 127.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
: (1.95...2.15)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm<sup>3</sup>/ : 8.6...8.7

100H.: (8.4...8.9)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.4...8.6

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100H.: (0.8...1.6)

Dispersion cm<sup>3</sup>/ : 0.2

100H.: (0.4)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.70...1.30

2nd speed 1/min: 500

Sleeve travel mm: 2.20...2.60

3rd speed 1/min: 800

Sleeve travel mm: 4.30...4.70

4th speed 1/min: 1100

Sleeve travel mm: 6.10...6.40

5th speed 1/min: 1375

Sleeve travel mm: 8.40...8.50

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1375

Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Charge press. hPa : 1000

Del.quantity cm<sup>3</sup>/ : 86.0...87.0

1000H.: (84.0...89.0)

Dispersion cm<sup>3</sup>/ : 3.00  
1000H.: (5.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 116...124

Testing:

1st c-rod trav.mm : 12.10

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1470...1500

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1600

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 74...82

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.00

Speed 1/min : 300

C-rod trav.mm : 8.40...8.60

C-rod trav.mm : 2.00

Speed 1/min : 570...630

#### CONSTANT REGULATION

Speed 1/min : 590...660

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 13.10...13.20

2nd speed 1/min : 800

C-rod trav.mm : 14.10...14.20

3rd speed 1/min : 1000

C-rod trav.mm : 13.90...14.10

4th speed 1/min : 1150

C-rod trav.mm : 13.30...13.60

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 1000

Contr.-rod trav.mm: 14.10...14.20

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 12.80...12.90

2nd pressure hPa : 750

C-rod trav.mm : 13.90...14.00

3rd pressure hPa : 650

C-rod trav.mm : 13.20...13.40

SWITCH-OVER POINT

Speed 1/min : 240 (260)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1000

Speed 1/min : 800

Del. quantity cm<sup>3</sup>/ : 89.0...91.0

1000H.: (86.5...93.5)

Charge press. hPa : 1000

Speed 1/min : 1000

Del. quantity cm<sup>3</sup>/ : 90.0...92.0

1000H.: (87.5...94.5)

Charge press. hPa : -

Speed 1/min : 500

Del. quantity cm<sup>3</sup>/ : 66.5...68.5

1000H.: (64.5...70.5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.10

Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100

Del. quantity cm<sup>3</sup>/ : 71.0...81.0

1000H.: (68.0...84.0)

Contr.-rod trav.mm: 14.70...15.70

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,8 01  
Edition : 24.07.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 9 400 087 256

Injection pump  
Pump designation : PE6P110A720RS371  
EP type number : 0 411 816 123  
Governor  
Governor design. : RQ250/1100PA419R  
Governor no. : 9 420 080 138

Customer-spec. information

Customer : DAIMLER-BENZ

Engine : OM 355 A

1st version kW : 210.0  
Speed 1/min: 2200

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 004

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1100

Contr.-rod trav.mm: 11.70...11.80

Del.quantity cm<sup>3</sup>/ : 16.0...16.2

100H.: (15.7...16.5)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.7)

2nd speed 1/min: 250.0

Contr.-rod trav. m: 5.9...6.1

Del.quantity cm<sup>3</sup>/ : 1.1...1.6

100H.: (0.8...1.8)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.7)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 600

Contr.-rod travelmm: 15.60...16.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1100

Del.quantity cm<sup>3</sup>/ : 160.0...162.0

1000H.: (157.0...165.0)

Dispersion cm<sup>3</sup>/ : 4.00

1000H.: (7.50)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 16.0

Testing:

1st c-rod trav.mm : 10.70

Speed 1/min : 1145...1160

2nd c-rod trav.mm : 4.00

Speed 1/min : 1210...1240

3rd c-rod trav.mm : 4.00

4th speed 1/min : 1300

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 7.50

Speed 1/min : 250

C-rod trav.mm : 6.00

C-rod trav.mm : 2.00

Speed 1/min : 390...430

Speed 1/min : 500

C-rod trav.mm max : 1.00

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500

Del.quantity cm<sup>3</sup>/ : 149.0...153.0

1000H.: (146.0...156.0)

#### SETTING CONTROL-ROD STOP

Speed 1/min : 500

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.70

Speed 1/min : 1145...1160

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 144.0...160.0

1000H.: (-)

Contr.-rod trav.mm: 12.70...13.10

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : CAT 10.5 H  
 Edition : 10.8.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 087 281  
 Injection pump  
 Pump designation : PES6P80A720LS456  
 EP type number : 9 400 087 020  
 Governor  
 Governor design. : RQV350...1000PA637  
 Governor no. : 9 420 080 158

Customer-spec. information  
 Customer : CATERPILLAR

Engine : 3306 T

1st version kW : 110.4  
 Speed 1/min: 2000

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 004

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
 : (1,60...1,80)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
 Tolerance + - <sup>0</sup> : 0,50 (0,75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 1000

Contr.-rod trav.mm: 12,80...12,90

Del.quantity cm3/ : 11,6...11,7

100H.: (11,4...11,8)

Dispersion cm3/ : 0,25

100H.: (0,40)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,70...6,90

Del.quantity cm3/ : 0,9...1,6

100H.: (0,7...1,8)

Dispersion cm3/ : 0,20

100H.: (0,35)

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1010

Cont.-rod travelmm: 15,20...17,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1000

Del.quantity cm3/ : 116,0...117,0

1000H.: (114,5...118,5)

Dispersion cm3/ : 2,5

1000H.: (4,0)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 65...74

Testing:

1st c-rod trav.mm : 11,80

Speed 1/min: 1030...1040

2nd c-rod trav.mm : 4,00

Speed 1/min: 1100...1130

4th speed 1/min: 1220

C-rod trav.mm : 0,00...1,00

**LOWEST RATED SPEED I**

Control-lever

position degrees: 13...21

diaphragm.

Testing:

Speed 1/min : 250  
C-rod trav.mm min : 11,00  
Speed 1/min : 350  
C-rod trav.mm : 5,90...6,10  
C-rod trav.mm : 2,00  
Speed 1/min : 510...570

CONSTANT REGULATION

Speed 1/min : 300...400

TORQUE CONTROL

Dimension a mm : 0,60  
Torque-control curve - 1st version  
1st speed 1/min : 1000  
C-rod trav.mm : 12,80...12,90  
2nd speed 1/min : 870  
C-rod trav.mm : 13,00...13,30  
3rd speed 1/min : 700  
C-rod trav.mm : 13,30...13,50  
4th speed 1/min : 500  
C-rod trav.mm : 13,40...13,50

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700  
Del. quantity cm<sup>3</sup>/ : 115,0...117,0  
1000H.: (114,0...118,0)  
Speed 1/min : 500  
Del. quantity cm<sup>3</sup>/ : 112,5...114,5  
1000H.: (111,5...115,5)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11,80  
Speed 1/min : 1030...1040

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5,90...6,10

Remarks:

Start-of-delivery setting with ROBO



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 A4  
Edition : 10.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 282  
Injection pump  
Pump designation : PES6P80A72DLS456  
EP type number : 9 400 087 029  
Governor  
Governor design. : RQV350...950PA609  
Governor no. : 9 420 080 154

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3306 T

1st version kW : 103.0  
Speed 1/min: 1900

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 004

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_\_\_\_\_

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
: (1,60...1,80)  
Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4  
SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)  
SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 950  
-----  
Contr.-rod trav.mm: 12,20...12,30  
-----  
Del.quantity cm3/ : 10,5...10,6  
100H.: (11,3...10,7)  
-----  
Dispersion cm3/ : 0,25  
100H.: (0,40)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 6,7...6,9  
Del.quantity cm3/ : 0,9...1,6  
100H.: (0,7...1,8)  
Dispersion cm3/ : 0,20  
100H.: (0,35)

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1010  
Cont.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 950  
Del.quantity cm3/ : 105,0...106,0  
1000H.: (113,5...107,5)  
Dispersion cm3/ : 2,5  
1000H.: (3,5)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 62...71

Testing:  
1st c-rod trav.mm : 11,20  
Speed 1/min : 980...990  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1050...1080  
4th speed 1/min : 1150  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

#### Testing:

Speed 1/min : 250  
C-rod trav.mm min : 11,00  
Speed 1/min : 350  
C-rod trav.mm : 5,90...6,10  
C-rod trav.mm : 2,00  
Speed 1/min : 510...570

#### CONSTANT REGULATION

Speed 1/min : 300...400

#### TORQUE CONTROL

Dimension a mm : 0,90  
Torque-control curve - 1st version  
1st speed 1/min : 950  
C-rod trav.mm : 12,20...12,30  
2nd speed 1/min : 800  
C-rod trav.mm : 12,60...12,90  
3rd speed 1/min : 700  
C-rod trav.mm : 13,00...13,20  
4th speed 1/min : 500  
C-rod trav.mm : 13,10...13,20

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700  
Del.quantity cm3/ : 111,0...113,0  
1000H.: (110,0...114,0)  
Speed 1/min : 500  
Del.quantity cm3/ : 108,0...110,0  
1000H.: (107,0...111,0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11,20  
Speed 1/min : 980...990

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5,90...6,10

#### Remarks:

Start-of-delivery setting with ROBO

diaphragm.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 A5  
Edition : 10.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 289  
Injection pump  
Pump designation : PES6P80A720LS456  
EP type number : 9 400 087 029  
Governor  
Governor design. : RQV350...1000PA609  
Governor no. : 9 420 080 165

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3306 T

1st version kW : 121,4  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 004

Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
                  : (1,60...1,80)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4  
SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (075)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 1000  
-----  
Contr.-rod trav.mm: 13,40...13,20  
-----  
Del.quantity cm3/ : 12,1...12,2  
-----  
100H.: (12,1...12,3)  
-----  
Dispersion cm3/ : 0,25  
-----  
100H.: (0,40)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 6,7...6,9  
Del.quantity cm3/ : 0,95...1,65  
100H.: (0,80...1,90)  
Dispersion cm3/ : 0,20  
100H.: (0,35)

**SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed 1/min: 1010  
Cont.-rod travelmm: 15,20...17,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
Speed 1/min: 1000  
Del.quantity cm3/ : 121,5...122,5  
1000H.: 121,0...123,0  
Dispersion cm3/ : 2,5  
1000H.: (4,0)

**HIGHEST RATED SPEED**

1st version  
Control-lever  
position degrees: 66...75

**Testing:**

1st c-rod trav.mm : 12,10  
Speed 1/min : 1030...1040  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1110...1140  
4th speed 1/min : 1230  
C-rod trav.mm : 0,00...1,00

**LOWEST RATED SPEED I**

Control-lever

position degrees: 13...21

**Testing:**

Speed 1/min : 250  
C-rod trav.mm min : 11,00  
Speed 1/min : 350  
C-rod trav.mm : 5,90...6,10  
C-rod trav.mm : 2,00  
Speed 1/min : 510...570

**CONSTANT REGULATION**

Speed 1/min : 300...400

**TORQUE CONTROL**

Dimension a mm : 0,90  
Torque-control curve - 1st version  
1st speed 1/min : 1000  
C-rod trav.mm : 13,10...13,20  
2nd speed 1/min : 850  
C-rod trav.mm : 13,30...13,60  
3rd speed 1/min : 700  
C-rod trav.mm : 13,90...14,10  
4th speed 1/min : 500  
C-rod trav.mm : 14,00...14,10

**SWITCH-OVER POINT**

Speed 1/min : 290 (310)

**FUEL-DELIVERY CHARACTERISTICS**

Speed 1/min : 700  
Del.quantity cm3/ : 126,0...128,0  
1000H.: (124,0...130,0)  
Speed 1/min : 500  
Del.quantity cm3/ : 122,5...124,5  
1000H.: (120,5...126,5)

**ROTATIONAL-SPEED LIMITATION**

1st version  
1mm control-rod travel less than  
full-load trav.mm: 12,10  
Speed 1/min : 1030...1040

**STARTING FUEL DELIVERY**

Speed 1/min : 100  
Del.quantity cm3/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

**LOW IDLE**

Speed 1/min : 350  
Contr.-rod trav.mm: 5,90...6,10

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : CAT 10,5 A  
 Edition : 10.8.87  
 Superceeded : 7.84  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 087 292  
 Injection pump  
 Pump designation : PES6P80A72DLS456  
 EP type number : 9 400 087 029  
 Governor  
 Governor design. : RQV350...1000PA609-1  
 Governer no. : 9 420 080 172

Customer-spec. information  
 Customer : CATERPILLAR

Engine : 3306 T

1st version kW : 110.4  
 Speed 1/min: 2000

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
 : (1,60...1,80)  
 Contr.-rod trav,mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 990

Contr.-rod trav,mm: 12,50...12,60

Del.quantity cm3/ : 11,1...11,2

100H.: (10,9...11,3)

Dispersion cm3/ : 0,20

100H.: (0,35)

2nd speed 1/min: 350

Contr.-rod trav, m: 6,70...6,90

Del.quantity cm3/ : 0,95...1,65

100H.: (-)

Dispersion cm3/ : 0,20

100H.: (0,30)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 325

Sleeve travel mm: 0,50...2,00

2nd speed 1/min: 400

Sleeve travel mm: 2,70...3,10

3rd speed 1/min: 500

Sleeve travel mm: 2,50...4,20

4th speed 1/min: 800

Sleeve travel mm: 6,10...6,60

5th speed 1/min: 1010

Sleeve travel mm: 8,40...8,60

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1010

Cont.-rod travelmm: 15,20...17,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 990

Del.quantity cm3/ : 111,0...112,0

1000H.: (109,5...113,5)

Dispersion cm3/ : 2,0

1000H.: (3,5)

### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 65...74

#### Testing:

1st c-rod trav.mm : 11,50

Speed 1/min : 1020...1030

2nd c-rod trav.mm : 4,00

Speed 1/min : 1090...1120

4th speed 1/min : 1220

C-rod trav.mm : 0,00...1,00

### LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

#### Testing:

Speed 1/min : 250

C-rod trav.mm min : 11,00

Speed 1/min : 350

C-rod trav.mm : 5,90...6,10

C-rod trav.mm : 2,00

Speed 1/min : 510...570

### CONSTANT REGULATION

Speed 1/min : 300...400

### TORQUE CONTROL

Dimension a mm : 1,00

Torque-control curve - 1st version

1st speed 1/min : 990

C-rod trav.mm : 12,50...12,60

2nd speed 1/min : 500

C-rod trav.mm : 13,50...13,60

3rd speed 1/min : 700

C-rod trav.mm : 13,40...13,60

4th speed 1/min : 850

C-rod trav.mm : 12,80...13,10

### SWITCH-OVER POINT

Speed 1/min : 290 (310)

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500

Del.quantity cm<sup>3</sup>/ : 117,0...119,0

1000H.: (114,0...118,0)

Speed 1/min : 700

Del.quantity cm<sup>3</sup>/ : 114,5...116,5

1000H.: (113,5...117,5)

### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11,50

Speed 1/min : 1020...1030

### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 152,0...172,0

1000H.: (-)

Contr.-rod trav.mm: 17,60...18,60

### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 5,90...6,10

### Remarks:

Start-of-delivery setting with ROBO diaphragm.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : CAT 7,0 A6  
 Edition : 10.8.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 087 293  
 Injection pump  
 Pump designation : PES4P80A72OLS440  
 EP type number : 9 400 087 028  
 Governor  
 Governor design. : RQV350...950PA609-2  
 Governer no. : 9 420 080 173

Customer-spec. information  
 Customer : CATERPILLAR

Engine : 3304

1st version kW : 65.5  
 Speed 1/min: 1900

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 1,95...2,05  
 : (1,90...2,10)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-3-4-2

SD ang. spacing°CS: 0-90-180-270  
 Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 950

Contr.-rod trav.mm: 11,65...11,75

Del.quantity cm3/ : 9,0...9,1

100H.: (8,8...9,3)

Dispersion cm3/ : 0,25

100H.: (0,40)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,7...6,9

Del.quantity cm3/ : 0,8...1,3

100H.: (0,6...1,4)

Dispersion cm3/ : 0,20

100H.: (0,35)

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1010

Cont.-rod travelmm: 15,20...17,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 950

Del.quantity cm3/ : 90,5...91,5

1000H.: (88,5...93,5)

Dispersion cm3/ : 2,5

1000H.: (4,0)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 62...71

Testing:

1st c-rod trav.mm : 10,65

Speed 1/min : 980...990

2nd c-rod trav.mm : 4,00

Speed 1/min : 1055...1085

4th speed 1/min : 1150

C-rod trav.mm : 0,00...1,00

**LOWEST RATED SPEED I**

Control-lever



position degrees: 15...23

Testing:

Speed 1/min : 250  
C-rod trav.mm min : 11,00  
Speed 1/min : 350  
C-rod trav.mm : 6,30...6,50  
C-rod trav.mm : 2,00  
Speed 1/min : 540...600

CONSTANT REGULATION

Speed 1/min : 300...400

TORQUE CONTROL

Dimension a mm : 0,80  
Torque-control curve - 1st version  
1st speed 1/min : 950  
C-rod trav.mm : 11,65...11,75  
2nd speed 1/min : 800  
C-rod trav.mm : 12,00...12,30  
3rd speed 1/min : 700  
C-rod trav.mm : 12,35...12,55  
4th speed 1/min : 500  
C-rod trav.mm : 12,45...12,55

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700  
Del.quantity cm<sup>3</sup>/ : 100,0...102,0  
1000H.: (98,0...104,0)  
Speed 1/min : 500  
Del.quantity cm<sup>3</sup>/ : 95,5...97,5  
1000H.: (93,5...99,5)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10,65  
Speed 1/min : 980...990

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6,30...6,50

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : CAT 7,0 A7  
 Edition : 11.8.87  
 Superceeded :  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 087 294  
 Injection pump  
 Pump designation : PES4P80A720LS440  
 EP type number : 9 400 087 028  
 Governor  
 Governor design. : RQV350...1000PA613-1  
 Govenner no. : 9 420 080 174

Customer-spec. information  
 Customer : CATERPILLAR

Engine : 3304 NA

1st version kW : 58.8  
 Speed 1/min: 2000

**TEST BENCH REQUIREMENTS**

Calibrating-gil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 1,95...2,05  
 : (1,90...2,10)  
 Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-3-4-2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
 Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 1000

Contr.-rod trav.mm: 11,60...11,70

Del.quantity cm3/ : 9,0...9,1

100H.: (8,8...9,3)

Dispersion cm3/ : 0,25

100H.: (0,40)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,70...6,90

Del.quantity cm3/ : 0,8...1,2

100H.: (0,7...1,3)

Dispersion cm3/ : 0,20

100H.: (0,35)

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1000

Cont.-rod travelmm: 15,20...17,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1000

Del.quantity cm3/ : 90,0...91,0

1000H.: (88,0...93,0)

Dispersion cm3/ : 2,5

1000H.: (4,0)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 66...75

Testing:

1st c-rod trav.mm : 10,60

Speed 1/min : 1030...1040

2nd c-rod trav.mm : 4,00

Speed 1/min : 1100...1130

4th speed 1/min : 1180

C-rod trav.mm : -

**LOWEST RATED SPEED I**

Control-lever

position degrees: 17...25

Testing:

Speed 1/min : 250  
C-rod trav.mm min : 11,00  
Speed 1/min : 350  
C-rod trav.mm : 6,50...6,70  
C-rod trav.mm : 2,00  
Speed 1/min : 550...610

CONSTANT REGULATION

Speed 1/min : 300...400

TORQUE CONTROL

Dimension a mm : 0,50  
Torque-control curve - 1st version  
1st speed 1/min : 1000  
C-rod trav.mm : 11,60...11,70  
2nd speed 1/min : 850  
C-rod trav.mm : 11,70...12,00  
3rd speed 1/min : 700  
C-rod trav.mm : 12,00...12,20  
4th speed 1/min : 500  
C-rod trav.mm : 12,10...12,20

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700  
Del.quantity cm3/ : 95,0...97,0  
1000H.: (92,5...99,5)  
Speed 1/min : 500  
Del.quantity cm3/ : 90,0...92,0  
1000H.: (87,5...94,5)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 10,60  
Speed 1/min : 1030...1040

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6,50...6,70

Remarks:

K01

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7,0 B  
 Edition : 11.8.87  
 Superceeded : 11.85  
 Calibrating oil : ISO-3114

Combination no. : 9 400 087 301

Injection pump  
 Pump designation : PES4P80A720LS852  
 EP type number : 9 400 087 034  
 Governor  
 Governor design. : RQV350...1000PA609-1  
 Governer no. : 9 420 080 172

Customer-spec. information  
 Customer : CATERPILLAR

Engine : 3304 T

1st version kW : 78.7  
 Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
 : (1,60...1,80)  
 Contr.-rod trav.mm: 9,00...12,00

K02

Cam sequence : 1-3-4-2

SD ang. spacing°CS: 0-90-180-270  
 Tolerance + - : 0,50 (0,75)

## BASIC SETTING

1st speed 1/mi: 1000  
 -----  
 Contr.-rod trav.mm: 12,20...12,30  
 -----  
 Del.quantity cm3/ : 10,6...10,7  
 -----  
 100H.: (10,5...10,9)  
 -----  
 Dispersion cm3/ : 0,25  
 -----  
 100H.: (0,35)  
 -----  
 2nd speed 1/min: 350  
 Contr.-rod trav. m: 6,70...6,90  
 Del.quantity cm3/ : 0,9...1,6  
 100H.: (0,7...1,8)  
 Dispersion cm3/ : 0,20  
 100H.: (0,30)

## SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed 1/min: 1010  
 Cont.-rod travelmm: 15,20...17,80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1000  
 Del.quantity cm3/ : 106,5...107,5  
 1000H.: (105,0...109,0)  
 Dispersion cm3/ : 2,5  
 1000H.: (3,5)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 64...72

## Testing:

1st c-rod trav.mm : 11,20  
 Speed 1/min : 1030...1040  
 2nd c-rod trav.mm : 4,00  
 Speed 1/min : 1110...1140  
 4th speed 1/min : 1200  
 C-rod trav.mm : 0,00...1,00

## LOWEST RATED SPEED I

Control-lever  
 position degrees: 13...21

Testing:

Speed 1/min : 350  
C-rod trav.mm min : 11,50  
Speed 1/min : 350  
C-rod trav.mm : 6,30...6,50  
C-rod trav.mm : 2,00  
Speed 1/min : 530...590

CONSTANT REGULATION

Speed 1/min : 320...420

TORQUE CONTROL

Dimension a mm : 1,00  
Torque-control curve - 1st version  
1st speed 1/min : 1000  
C-rod trav.mm : 12,20...12,30  
2nd speed 1/min : 850  
C-rod trav.mm : 12,70...12,90  
3rd speed 1/min : 700  
C-rod trav.mm : 13,10...13,30  
4th speed 1/min : 500  
C-rod trav.mm : 13,20...13,30

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 700  
Del.quantity cm3/ : 113,0...115,0  
1000H.: (111,0...117,0)  
Speed 1/min : 500  
Del.quantity cm3/ : 109,0...112,0  
1000H.: (107,0...113,0)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11,20  
Speed 1/min : 1030...1040

STARTING FUEL DELIVERY

Speed 1/min : 100  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6,30...6,50

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 10,0 E  
 Edition : 11.8.87  
 Superceeded : 7.86  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 087 308  
 Injection pump  
 Pump designation : PE5P110A72ORS479  
 EP type number : 9 400 087 040  
 Governor  
 Governor design. : RQ300/1050PA718-1  
 Governor no. : 9 420 080 187

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM355-S A

1st version kW : 170  
 Speed 1/min: 2100

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 3,35...3,45  
 : (3,30...3,50)  
 Contr.-rod trav.mm: 9,00...12,00

K04

Cam sequence : 1-2-4-5-3

SD ang. spacing°CS: 0-72-144-216-288  
 Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 1050

Contr.-rod trav.mm: 12,20...12,30

Del.quantity cm3/ : 16,1...16,3

100H.: (15,8...16,6)

Dispersion cm3/ : 0,40

100H.: (0,75)

2nd speed 1/min: 300

Contr.-rod trav. m: 6,40...6,60

Del.quantity cm3/ : 1,1...1,6

100H.: (-)

Dispersion cm3/ : 0,45

100H.: (0,75)

**SLEEVE POSITION**

Control-lever position

Degree: 49

Speed 1/min: 600

Cont.-rod travelmm: 19,20...20,80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1050

Charge press. hPa : 700

Del.quantity cm3/ : 161,0...163,0

1000H.: (158,0...166,0)

Dispersion cm3/ : 4,0

1000H.: (7,5)

**HIGHEST RATED SPEED**

Setting point:

Speed 1/min : 600

Contr.-rod trav.mm: 20,0

Testing:

1st c-rod trav.mm : 11,20

Speed 1/min : 1095...1110

2nd c-rod trav.mm : 4,00

Speed 1/min : 1150...1180

4th speed 1/min : 1300

C-rod trav.mm : 0,00...1,00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 6,50

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8,50

Speed 1/min : 300

C-rod trav.mm : 6,50

C-rod trav.mm : 2,00

Speed 1/min : 390...430

TORQUE CONTROL

Dimension a mm : 0,35

Torque-control curve - 1st version

1st speed 1/min : 1050

C-rod trav.mm : 12,20...12,30

2nd speed 1/min : 600

C-rod trav.mm : 13,10...13,20

3rd speed 1/min : 900

C-rod trav.mm : 12,80...13,00

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500

Pressure hPa : 700

Contr.-rod trav.mm: 13,10...13,20

Measurement

Speed 1/min : 500

1st pressure hPa : -

C-rod trav.mm : 10,30...10,40

2nd pressure hPa : 400

C-rod trav.mm : 12,40...12,50

3rd pressure hPa : 250

C-rod trav.mm : 11,10...11,30

SWITCH-OVER POINT

Speed 1/min : 230 (270)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700

Speed 1/min : 600

Del. quantity cm3/ : 177,0...181,0

1000H.: (174,0...184,0)

Charge press. hPa : 700

Speed 1/min : 900

Del. quantity cm3/ : 174,0...178,0

1000H.: (171,0...181,0)

Charge press. hPa : -

Speed 1/min : 500

K05

Del. quantity cm3/ : 112,5...115,5  
1000H.: (110,0...118,0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11,20

Speed 1/min : 1095...1110

STARTING FUEL DELIVERY

Speed 1/min : 100

Del. quantity cm3/ : 150,0...170,0

1000H.: (-)

Contr.-rod trav.mm: 13,30...14,30

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 D  
Edition : 11.8.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113  
  
Combination no. : 9 400 087 321  
  
Injection pump  
Pump designation : PES6P80A720LS456  
EP type number : 9 400 087 029  
Governor  
Governor design. : RQV350...1000PA755  
Governor no. : 9 420 080 197

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3306 T

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 000  
  
Inlet press., bar : 1.5  
  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
  
Opening  
pressure, bar : 172...175  
  
Test inj. tubing : 1 680 750 015  
  
Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
  
Prestroke mm : 1,65...1,75  
                  : (1,60...1,80)  
Contr.-rod trav.mm: 9,00...12,00  
Cam sequence : 1-5-3-6-2-4



SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 13,10...13,20

Del.quantity cm<sup>3</sup>/ : 11,8...11,9

100H.: (11,8...12,0)

Dispersion cm<sup>3</sup>/ : 0,25

100H.: (0,40)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,70...6,90

Del.quantity cm<sup>3</sup>/ : 0,9...1,6

100H.: (0,8...1,9)

Dispersion cm<sup>3</sup>/ : 0,20

100H.: (0,35)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 325

Sleeve travel mm: 0,50...2,00

2nd speed 1/min: 400

Sleeve travel mm: 2,70...3,10

3rd speed 1/min: 500

Sleeve travel mm: 3,50...4,20

4th speed 1/min: 800

Sleeve travel mm: 6,10...6,60

5th speed 1/min: 1010

Sleeve travel mm: 8,50...8,60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1010

Contr.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 450

Del.quantity cm<sup>3</sup>/ : 118,5...119,5

1000H.: 118,0...120,0

Dispersion cm<sup>3</sup>/ : 2,5

1000H.: (4,0)

#### HIGHEST RATED SPEED

1st version

K07

Control-lever  
position degrees: 66...75

Testing:

1st c-rod trav.mm : 12,10

Speed 1/min : 1030...1040

2nd c-rod trav.mm : 4,00

Speed 1/min : 1110...1140

4th speed 1/min : 1230

C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 13...21

Testing:

Speed 1/min : 250

C-rod trav.mm min : 11,00

Speed 1/min : 350

C-rod trav.mm : 5,90...6,10

C-rod trav.mm : 2,00

Speed 1/min : 510...570

#### CONSTANT REGULATION

Speed 1/min : 300...400

#### TORQUE CONTROL

Dimension a mm : 1,30

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 13,10...13,20

2nd speed 1/min : 600

C-rod trav.mm : 14,40...14,50

3rd speed 1/min : 800

C-rod trav.mm : 13,90...14,10

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600

Pressure hPa : 450

Contr.-rod trav.mm: 14,40...14,50

Measurement

Speed 1/min : 600

1st pressure hPa : -

C-rod trav.mm : 13,00...13,10

2nd pressure hPa : 270

C-rod trav.mm : 13,80...13,90

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 450  
Speed 1/min : 600  
Del. quantity cm<sup>3</sup>/ : 131,0...133,0  
1000H.: (129,0...135,0)  
Charge press. hPa : 450  
Speed 1/min : 800  
Del. quantity cm<sup>3</sup>/ : 127,5...129,5  
1000H.: (125,5...131,5)  
Charge press. hPa : -  
Speed 1/min : 600  
Del. quantity cm<sup>3</sup>/ : 108,5...110,5  
1000H.: (106,5...112,5)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12,10  
Speed 1/min : 1030...1040

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5,90...6,10

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 A1  
Edition : 11.8.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113

Combination no. : 9 400 087 322

Injection pump  
Pump designation : PES6P80A720LS456  
EP type number : 9 400 087 029  
Governor  
Governor design. : RQV350...950PA609-3  
Governor no. : 9 420 080 198

Customer-spec. information  
Customer : CATERPILLER

Engine : 3306 T

1st version kW : 103.0  
Speed 1/min: 1900

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness : 6,00x1,50x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
: (1,60...1,80)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4  
SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)  
SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 950  
-----  
Contr.-rod trav.mm: 12,20...12,30  
-----  
Del.quantity cm3/ : 10,5...10,6  
-----  
100H.: (11,3...11,7)  
-----  
Dispersion cm3/ : 0,25  
-----  
100H.: (0,40)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 6,70...6,90  
Del.quantity cm3/ : 0,9...1,6  
100H.: (0,7...1,8)  
Dispersion cm3/ : 0,20  
100H.: (0,35)

(B) Setting of injection pump with externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 325  
Sleeve travel mm: 0,50...2,00  
2nd speed 1/min: 400  
Sleeve travel mm: 2,70...3,10  
3rd speed 1/min: 500  
Sleeve travel mm: 3,50...4,20  
4th speed 1/min: 800  
Sleeve travel mm: 6,10...6,60  
5th speed 1/min: 1010  
Sleeve travel mm: 8,40...8,60

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1010  
Contr.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 950  
Del.quantity cm3/ : 105,0...106,0  
1000H.: (113,5...117,5)  
Dispersion cm3/ : 2,5  
1000H.: (4,0)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 62...71

#### Testing:

1st c-rod trav.mm : 11,20  
Speed 1/min : 980...990  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1050...1080  
4th speed 1/min : 1150  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 13...21

#### Testing:

Speed 1/min : 250  
C-rod trav.mm min : 11,00  
Speed 1/min : 350  
C-rod trav.mm : 5,90...6,10  
C-rod trav.mm : 2,00  
Speed 1/min : 510...570

#### CONSTANT REGULATION

Speed 1/min : 300...400

#### TORQUE CONTROL

Dimension a mm : 0,90  
Torque-control curve - 1st version  
1st speed 1/min : 950  
C-rod trav.mm : 12,20...12,30  
2nd speed 1/min : 500  
C-rod trav.mm : 13,10...13,20  
3rd speed 1/min : 700  
C-rod trav.mm : 13,00...13,20  
4th speed 1/min : 800  
C-rod trav.mm : 12,60...12,90

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 108,0...110,0  
1000H.: (107,0...111,0)  
Speed 1/min : 700  
Del.quantity cm3/ : 111,0...113,0  
1000H.: (110,0...114,0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11,20  
Speed 1/min : 980...990

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5,90...6,10

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 A2  
Edition : 11.8.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 324  
Injection pump  
Pump designation : PES6P80A72OLS456  
EP type number : 9 400 087 029  
Governor  
Governor design. : RQV350...1000PA609-4  
Governor no. : 9 420 080 200

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3306 T

1st version kW : 121.4  
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 691 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
: (1,60...1,80)  
Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 13,10...13,20

Del.quantity cm3/ : 12,1...12,2

100H.: (12,1...12,3)

Dispersion cm3/ : 0,25

100H.: (0,40)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,70...6,90

Del.quantity cm3/ : 0,9...1,6

100H.: (0,8...1,9)

Dispersion cm3/ : 0,20

100H.: (0,35)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 325

Sleeve travel mm: 0,50...2,00

2nd speed 1/min: 400

Sleeve travel mm: 2,70...3,10

3rd speed 1/min: 500

Sleeve travel mm: 3,50...4,20

4th speed 1/min: 800

Sleeve travel mm: 6,10...6,60

5th speed 1/min: 1010

Sleeve travel mm: 8,40...8,60

#### SLEEVE POSITION

Speed 1/min: 1010

Cont.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Del.quantity cm3/ : 121,5...122,5

1000H.: (121,0...123,0)

Dispersion cm3/ : 2,5

1000H.: (4,0)

#### HIGHEST RATED SPEED

1st version

K13

Control-lever  
position degrees: 66...75

#### Testing:

1st c-rod trav.mm : 12,10

Speed 1/min : 1030...1040

2nd c-rod trav.mm : 4,00

Speed 1/min : 1110...1140

4th speed 1/min : 1230

C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

#### Testing:

Speed 1/min : 250

C-rod trav.mm min : 11,00

Speed 1/min : 350

C-rod trav.mm : 5,90...6,10

C-rod trav.mm : 2,00

Speed 1/min : 510...570

#### CONSTANT REGULATION

Speed 1/min : 300...400

#### TORQUE CONTROL

Dimension a mm : 0,90

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 13,10...13,20

2nd speed 1/min : 500

C-rod trav.mm : 14,00...14,10

3rd speed 1/min : 700

C-rod trav.mm : 13,90...14,10

4th speed 1/min : 850

C-rod trav.mm : 13,30...13,60

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500

Del.quantity cm3/ : 122,5...124,5

1000H.: (120,5...126,5)

Speed 1/min : 700

Del.quantity cm3/ : 126,0...128,0

1000H.: (124,0...130,0)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12,10

Speed 1/min : 1030...1040

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5,90...6,10

Remarks:



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 A3  
Edition : 11.8.87  
Superceeded : 1.86  
Calibrating oil : ISO-4113

Combination no. : 9 400 087 325

Injection pump  
Pump designation : PES6P80A720LS456  
EP type number : 9 400 087 029  
Governor  
Governor design. : RQV350...1000PA609-5  
Governor no. : 9 420 080 201

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3306 T

1st version kW : 110.4  
Speed 1/min: 2000

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness : 6,00X1,50X600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
: (1,60...1,80)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4  
SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 990  
-----  
Contr.-rod trav.mm: 12,50...12,60  
-----  
Del.quantity cm3/ : 11,1...11,2  
-----  
100H.: (10,9...11,3)  
-----  
Dispersion cm3/ : 0,20  
-----  
100H.: (0,35)  
-----  
2nd speed 1/min: 350  
Contr.-rod trav. m: 6,70...6,90  
Del.quantity cm3/ : 0,9...1,6  
100H.: (-)  
Dispersion cm3/ : 0,20  
100H.: (0,30)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 325  
Sleeve travel mm: 0,50...2,00  
2nd speed 1/min: 400  
Sleeve travel mm: 2,70...3,10  
3rd speed 1/min: 500  
Sleeve travel mm: 3,50...4,20  
4th speed 1/min: 800  
Sleeve travel mm: 6,10...6,60  
5th speed 1/min: 1010  
Sleeve travel mm: 8,40...8,60

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1010  
Contr.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 990  
Del.quantity cm3/ : 111,0...112,0  
1000H.: (109,5...113,5)  
Dispersion cm3/ : 2,0  
1000H.: (3,5)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 65...74

#### Testing:

1st c-rod trav.mm : 11,50  
Speed 1/min : 1020...1030  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1090...1120  
4th speed 1/min : 1220  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 13...21

#### Testing:

Speed 1/min : 250  
C-rod trav.mm min : 11,00  
Speed 1/min : 350  
C-rod trav.mm : 5,90...6,10  
C-rod trav.mm : 2,00  
Speed 1/min : 510...570

#### CONSTANT REGULATION

Speed 1/min : 300...400

#### TORQUE CONTROL

Dimension a mm : 1,00  
Torque-control curve - 1st version  
1st speed 1/min : 990  
C-rod trav.mm : 12,50...12,60  
2nd speed 1/min : 500  
C-rod trav.mm : 13,50...13,60  
3rd speed 1/min : 700  
C-rod trav.mm : 13,40...13,60  
4th speed 1/min : 850  
C-rod trav.mm : 12,80...13,10

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 117,0...119,0  
1000H.: (114,0...118,0)  
Speed 1/min : 700  
Del.quantity cm3/ : 114,5...116,5  
1000H.: (113,5...117,5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11,50  
Speed 1/min : 1020...1030

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5,90...6,10

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7,0 B1  
Edition : 11.8.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113

Combination no. : 9 400 087 326

Injection pump  
Pump designation : PES4P80A72OLS852  
EP type number : 9 400 087 034  
Governor  
Governor design. : RQV350...1000PA609-5  
Governor no. : 9 420 080 201

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3304 T

1st version kW : 78.7  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 1,5

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,65...1,75  
: (1,60...1,80)  
Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-3-4-2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

### BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 12,20...12,30

Del.quantity cm3/ : 10,6...10,7

100H.: (10,5...10,9)

Dispersion cm3/ : 0,25

100H.: (0,35)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,70...6,90

Del.quantity cm3/ : 0,9...1,6

100H.: (0,7...1,8)

Dispersion cm3/ : 0,20

100H.: (0,30)

(B) Setting of injection pump with externally-mounted governor

### SLEEVE TRAVELS

1st speed 1/min: 325

Sleeve travel mm: 0,50...2,00

2nd speed 1/min: 400

Sleeve travel mm: 2,70...3,10

3rd speed 1/min: 500

Sleeve travel mm: 3,50...4,20

4th speed 1/min: 800

Sleeve travel mm: 6,10...6,60

5th speed 1/min: 1010

Sleeve travel mm: 8,40...8,60

### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1010

Cont.-rod travelmm: 15,20...17,80

### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Del.quantity cm3/ : 106,5...107,5

1000H.: (105,0...109,0)

Dispersion cm3/ : 2,5

1000H.: (3,5)

### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 64...72

Testing:

1st c-rod trav.mm : 11,20

Speed 1/min : 1030...1040

2nd c-rod trav.mm : 4,00

Speed 1/min : 1110...1140

4th speed 1/min : 1200

C-rod trav.mm : 0,00...1,00

### LOWEST RATED SPEED I

Control-lever

position degrees: 13...21

Testing:

Speed 1/min : 250

C-rod trav.mm min : 11,50

Speed 1/min : 350

C-rod trav.mm : 6,30...6,50

C-rod trav.mm : 2,00

Speed 1/min : 530...590

### CONSTANT REGULATION

Speed 1/min : 320...420

### TORQUE CONTROL

Dimension a mm : 1,00

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 12,20...12,30

2nd speed 1/min : 500

C-rod trav.mm : 13,20...13,30

3rd speed 1/min : 700

C-rod trav.mm : 13,10...13,30

4th speed 1/min : 850

C-rod trav.mm : 12,70...12,90

### SWITCH-OVER POINT

Speed 1/min : 290 (310)

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500

Del.quantity cm3/ : 109,0...112,0

1000H.: (107,0...113,0)

Speed 1/min : 700

Del.quantity cm3/ : 113,0...115,0

1000H.: (111,0...117,0)

### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11,20

Speed 1/min : 1030...1040

STARTING FUEL DELIVERY

Speed 1/min : 100  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6,30...6,50

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7,0 A1  
Edition : 12.8.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113

Combination no. : 9 400 087 327

Injection pump  
Pump designation : PES4P80A720LS440  
EP type number : 9 400 087 028  
Governor  
Governor design. : RQV350...950PA609-6  
Governor no. : 9 420 080 202

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3304 - NA

1st version kW : 65.5  
Speed 1/min: 1900

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,95...2,05  
: (1,90...2,10)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-3-4-2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 950

Contr.-rod trav.mm: 11,65...11,75

Del.quantity cm<sup>3</sup>/ : 9,0...9,1

100H.: (8,8...9,3)

Dispersion cm<sup>3</sup>/ : 0,25

100H.: (0,40)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,7...6,9

Del.quantity cm<sup>3</sup>/ : 0,8...1,3

100H.: (0,6...1,4)

Dispersion cm<sup>3</sup>/ : 0,20

100H.: (0,35)

(B) Setting of injection pump with externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 325

Sleeve travel mm: 0,50...2,00

2nd speed 1/min: 400

Sleeve travel mm: 2,70...3,10

3rd speed 1/min: 500

Sleeve travel mm: 3,50...4,20

4th speed 1/min: 800

Sleeve travel mm: 6,10...6,60

5th speed 1/min: 1010

Sleeve travel mm: 8,40...8,60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1010

Cont.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 950

Del.quantity cm<sup>3</sup>/ : 90,5...91,5

1000H.: (88,5...93,5)

Dispersion cm<sup>3</sup>/ : 2,5

1000H.: (4,0)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 62...71

Testing:

1st c-rod trav.mm : 10,65

Speed 1/min : 980...990

2nd c-rod trav.mm : 4,00

Speed 1/min : 1055...1085

4th speed 1/min : 1150

C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 15...23

Testing:

Speed 1/min : 250

C-rod trav.mm min : 11,00

Speed 1/min : 350

C-rod trav.mm : 6,30...6,50

C-rod trav.mm : 2,00

Speed 1/min : 540...600

#### CONSTANT REGULATION

Speed 1/min : 300...400

#### TORQUE CONTROL

Dimension a mm : 0,80

Torque-control curve - 1st version

1st speed 1/min : 950

C-rod trav.mm : 11,65...11,75

2nd speed 1/min : 500

C-rod trav.mm : 12,45...12,55

3rd speed 1/min : 700

C-rod trav.mm : 12,35...12,55

4th speed 1/min : 800

C-rod trav.mm : 12,00...12,30

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500

Del.quantity cm<sup>3</sup>/ : 95,5...97,5

1000H.: (93,5...99,5)

Speed 1/min : 700

Del.quantity cm<sup>3</sup>/ : 100,0...102,0

1000H.: (98,0...104,0)

#### ROTATIONAL-SPEED LIMITATION

1st version

Imm control-rod travel less than

full-load trav.mm: 10,65

Speed 1/min : 980...990



STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6,30...6,50

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 7,0 A2  
Edition : 12.8.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113  
  
Combination no. : 9 400 087 328  
  
Injection pump  
Pump designation : PES4P80A720LS440  
EP type number : 9 400 087 028  
Governor  
Governor design. : RQV350...1000PA613-2  
Governor no. : 9 420 080 203

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3304 NA

1st version kW : 58.8  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness : 6,00x1,50x600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_ \_ \_ \_

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,95...2,05  
: (1,90...2,10)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-3-4-2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 11,60...11,70

Del.quantity cm<sup>3</sup>/ : 9,0...9,1

100H.: (8,8...9,3)

Dispersion cm<sup>3</sup>/ : 0,25

100H.: (0,40)

2nd speed 1/min: 350

Contr.-rod trav. m: 6,70...6,90

Del.quantity cm<sup>3</sup>/ : 0,8...1,2

100H.: (0,7...1,3)

Dispersion cm<sup>3</sup>/ : 0,20

100H.: (0,35)

(B) Setting of injection pump with externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 325

Sleeve travel mm: 0,50...2,00

2nd speed 1/min: 400

Sleeve travel mm: 2,70...3,10

3rd speed 1/min: 500

Sleeve travel mm: 3,50...4,20

4th speed 1/min: 800

Sleeve travel mm: 6,10...6,60

5th speed 1/min: 1010

Sleeve travel mm: 8,40...8,60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1000

Contr.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Del.quantity cm<sup>3</sup>/ : 90,0...91,0

1000H.: (88,0...93,0)

Dispersion cm<sup>3</sup>/ : 2,5

1000H.: (4,0)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 66...75

Testing:

1st c-rod trav.mm : 10,60

Speed 1/min : 1030...1040

2nd c-rod trav.mm : 4,00

Speed 1/min : 1100...1130

4th speed 1/min : 1180

C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 17...25

Testing:

Speed 1/min : 250

C-rod trav.mm min : 11,00

Speed 1/min : 350

C-rod trav.mm : 6,50...6,70

C-rod trav.mm : 2,00

Speed 1/min : 550...610

#### CONSTANT REGULATION

Speed 1/min : 300...400

#### TORQUE CONTROL

Dimension a mm : 0,50

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 11,60...11,70

2nd speed 1/min : 500

C-rod trav.mm : 12,10...12,20

3rd speed 1/min : 700

C-rod trav.mm : 12,00...12,20

4th speed 1/min : 850

C-rod trav.mm : 11,70...12,00

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500

Del.quantity cm<sup>3</sup>/ : 90,0...92,0

1000H.: (87,5...94,5)

Speed 1/min : 700

Del.quantity cm<sup>3</sup>/ : 95,0...97,0

1000H.: (92,5...99,5)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10,60

Speed 1/min : 1030...1040

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 152,0...172,0  
1000H.: (-)  
Contr.-rod trav.mm: 17,60...18,60

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 6,50...6,70

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 6,6 C  
Edition : 12.8.87  
Superceeded : 4.86  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 334  
Injection pump  
Pump designation : PES6P110A72ORS3149  
EP type number : 9 400 087 045  
Governor  
Governor design. : RQV350...1300PA772  
Governor no. : 9 420 080 209

Customer-spec. information  
Customer : FORD (FTO)

Engine : 6,6 L TC

1st version kW : 121.4  
Speed 1/min: 2600

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp, °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,6

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4,25...4,35  
                  : (4,20...4,40)  
Contr.-rod trav.mm: 9,00...12,00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + -<sup>0</sup> : 0,5 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 13,10...13,20  
-----  
Del. quantity cm3/ : 10,5...10,7  
-----  
                  100H.: (10,2...11,0)  
-----  
Dispersion cm3/ : 0,50  
-----  
                  100H.: (0,90)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 350  
Sleeve travel mm: 0,60...1,30  
2nd speed 1/min: 500  
Sleeve travel mm: 2,30...2,70  
3rd speed 1/min: 800  
Sleeve travel mm: 4,00...4,30  
4th speed 1/min: 1000  
Sleeve travel mm: 5,00...5,30  
5th speed 1/min: 1300  
Sleeve travel mm: 7,20...7,30

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1350  
Contr.-rod travelmm: 15,20...17,80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 1000  
Del. quantity cm3/ : 105,0...107,0  
                  1000H.: (102,0...110,0)  
Dispersion cm3/ : 5,0  
                  1000H.: (9,0)

#### HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 61...69

#### Testing:

1st c-rod trav.mm : 12,10  
Speed 1/min : 1360...1370  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1505...1535  
4th speed 1/min : 1650  
C-rod trav.mm : 0,00...1,00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...17

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9,00  
Speed 1/min : 350  
C-rod trav.mm : 7,20...7,40  
C-rod trav.mm : 2,00  
Speed 1/min : 600...660

#### CONSTANT REGULATION

Speed 1/min : 370...440

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 500  
Pressure hPa : 1000  
Contr.-rod trav.mm: 13,10...13,20

#### Measurement

Speed 1/min : 500

1st pressure hPa : (-)  
C-rod trav.mm : 11,60...11,70  
2nd pressure hPa : 700  
C-rod trav.mm : 12,70...12,80  
3rd pressure hPa : 500  
C-rod trav.mm : 12,00...12,20

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 1000  
Speed 1/min : 800  
Del. quantity cm3/ : 102,0...106,0  
                  1000H.: (100,0...108,0)  
Charge press. hPa : (-)  
Speed 1/min : 500

Del.quantity cm3/ : 76,5...78,5  
1000H.: (73,5...81,5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 12,10  
Speed 1/min : 1360...1370

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 100,0...120,0  
1000H.: (96,0...124,0)  
Contr.-rod trav.mm: 20,00...21,00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 7,20...7,40  
Del.quantity cm3/ : 16,0...20,0  
1000H.: (13,5...22,5)  
Dispersion cm3/ : 3,5  
1000H.: (5,5)  
Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR 7,8 B  
Edition : 12.8.87  
Superceeded : 10.85  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 338  
Injection pump  
Pump designation : PES6P110A72ORS3151  
EP type number : 9 400 087 047  
Governor  
Governor design. : RQV350...1300PA777  
Governor no. : 9 420 080 211

Customer-spec. information  
Customer : FORD (FT0)

Engine : 7,8 L-TC

1st version kW : 165,6  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025

Inlet press., bar : 1,5

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,6

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6,00X1,50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4,25...4,35  
                  : (4,20...4,40)  
Contr.-rod trav.mm: 9,00...12,00  
Cam sequence : 1-5-3-6-2-4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 14,10...14,20  
-----  
Del.quantity cm3/ : 14,4...14,6  
-----  
100H.: (14,2...14,8)  
-----  
Dispersion cm3/ : 0,50  
-----  
100H.: (0,90)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 350  
Sleeve travel mm: 0,60...1,30  
2nd speed 1/min: 500  
Sleeve travel mm: 2,30...2,70  
3rd speed 1/min: 800  
Sleeve travel mm: 4,00...4,30  
4th speed 1/min: 1000  
Sleeve travel mm: 5,00...5,30  
5th speed 1/min: 1300  
Sleeve travel mm: 7,20...7,30

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1350  
Cont.-rod travelmm: 15,20...17,80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Charge press. hPa : 800  
Del.quantity cm3/ : 144,5...146,5  
1000H.: (142,5...148,5)  
Dispersion cm3/ : 5,0  
1000H.: (9,0)

## HIGHEST RATED SPEED

1st version



Control-lever  
position degrees: 61...69

Testing:

1st c-rod trav.mm : 13,10  
Speed 1/min : 1360...1370  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1510...1540  
4th speed 1/min : 1630  
C-rod trav.mm : 0,00...1,00

LOWEST RATED SPEED I

Control-lever  
position degrees: 11...19

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9,00  
Speed 1/min : 350  
C-rod trav.mm : 7,40...7,60  
C-rod trav.mm : 2,00  
Speed 1/min : 620...680

CONSTANT REGULATION

Speed 1/min : 370...440

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 800  
Contr.-rod trav.mm: 13,80...13,90

Measurement

Speed 1/min : 500

1st pressure hPa : (-)  
C-rod trav.mm : 12,10...12,20  
2nd pressure hPa : 580  
C-rod trav.mm : 13,70...13,80  
3rd pressure hPa : 390  
C-rod trav.mm : 12,60...12,80

SWITCH-OVER POINT

Speed 1/min : 290 (310)

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 800  
Speed 1/min : 800  
Del.quantity cm3/ : 119,0...123,0  
1000H.: (117,0...125,0)  
Charge press. hPa : -  
Speed 1/min : 500

Del.quantity cm3/ : 73,0...75,0  
1000H.: (70,0...78,0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 13,10  
Speed 1/min : 1360...1370

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 150,0...170,0  
1000H.: (146,0...174,0)  
Contr.-rod trav.mm: 20,0...21,0

LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 7,40...7,60  
Del.quantity cm3/ : 16,0...20,0  
1000H.: (13,5...22,5)  
Dispersion cm3/ : 3,5  
1000H.: (5,5)  
Set shutoff stop 1.5...2.0 mm before  
shutoff.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 J  
Edition : 24.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 348  
Injection pump  
Pump designation : PES6P100A720LS508  
EP type number : 9 400 087 053  
Governor  
Governor design. : RQV350...875PA798-6  
Governor no. : 9 420 080 236

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3306 DINA

1st version kW : 87.2  
Speed 1/min: 1750

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 2...3

Prestroke mm : 3.95...4.05  
                  : (3.90...4.10)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 875

Contr.-rod trav.mm: 8.80...8.90

Del.quantity cm3/ : 7.1...7.3

100H.: (6.9...7.5)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.7...6.9

Del.quantity cm3/ : 1.0...1.4

100H.: (0.7...1.6)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 350

Sleeve travel mm: 1.90...2.70

2nd speed 1/min: 450

Sleeve travel mm: 3.80...4.20

3rd speed 1/min: 650

Sleeve travel mm: 5.60...6.00

4th speed 1/min: 920

Sleeve travel mm: 8.50...8.60

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 950

Contr.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 875

Del.quantity cm3/ : 71.5...73.5

1000H.: (69.5...75.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 61...69

#### Testing:

1st c-rod trav.mm : 7.80

Speed 1/min : 910...920

2nd c-rod trav.mm : 4.00

Speed 1/min : 950...980

4th speed 1/min : 1050

C-rod trav.mm : 0.00...1.00

### LOWEST RATED SPEED I

Control-lever

position degrees: 11...19

#### Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.00

Speed 1/min : 350

C-rod trav.mm : 5.10...5.30

C-rod trav.mm : 2.00

Speed 1/min : 420...480

### CONSTANT REGULATION

Speed 1/min : 350...420

### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 875

C-rod trav.mm : 8.80...8.90

2nd speed 1/min : 600

C-rod trav.mm : 9.50...8.60

3rd speed 1/min : 700

C-rod trav.mm : 9.20...9.40

4th speed 1/min : 750

C-rod trav.mm : 9.00...9.30

### SWITCH-OVER POINT

Speed 1/min : 290 (310)

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 70.0...74.0

1000H.: (68.0...76.0)

Dispersion cm3/ : 5.00

1000H.: (7.00)

Speed 1/min : 750

Del.quantity cm3/ : 70.5...74.5

1000H.: (68.5...76.5)

### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 7.80

LOS

Speed 1/min : 910...920

### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 195.0...215.0

1000H.: (191.0...219.0)

Contr.-rod trav.mm: 14.00...15.00

### LOW IDLE

Speed 1/min : 350

Contr.-rod trav.mm: 5.10...5.30

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAT 10,5 I  
Edition : 24.07.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 087 356  
Injection pump  
Pump designation : PES6P100A720LS511  
EP type number : 9 400 087 059  
Governor  
Governor design. : RQV350/840...900  
PA839  
Governor no. : 9 420 080 233

Customer-spec. information  
Customer : CATERPILLAR

Engine : 3306 DIT

1st version kW : 190,0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 9 401 087 348

Inlet press., bar : 2.00

Calibrating nozzle-holder  
assembly : 1 688 901 017

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0.6

Test inj. tubing : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values \_ \_ \_ \_

START OF DELIVERY  
Test pressure, bar: 2...3

Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 900  
-----  
Contr.-rod trav.mm: 12.60...12.70  
-----  
Del.quantity cm3/ : 18.2...18.4  
                  100H.: (18.0...18.7)  
-----  
Dispersion cm3/ : 0.3  
                  100H.: (0.6)  
-----  
2nd speed 1/min: 350.0  
Contr.-rod trav. m: 6.4...6.6  
Del.quantity cm3/ : 1.3...1.7  
                  100H.: (1.0...1.9)  
Dispersion cm3/ : 0.3  
                  100H.: (0.5)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 350  
Sleeve travel mm: 0.50...1.50  
2nd speed 1/min: 500  
Sleeve travel mm: 2.40...2.60  
3rd speed 1/min: 750  
Sleeve travel mm: 2.40...2.60  
4th speed 1/min: 850  
Sleeve travel mm: 4.00...4.50  
5th speed 1/min: 950  
Sleeve travel mm: 8.50...8.60

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 925  
Contr.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 900

L07

Del.quantity cm3/ : 182.5...184.5  
                  1000H.: (180.0...187.0)  
Dispersion cm3/ : 3.50  
                  1000H.: (6.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 57...65

#### Testing:

1st c-rod trav.mm : 11.60  
Speed 1/min : 910...920  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 930...960  
4th speed 1/min : 1050  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 5...13

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.00  
Speed 1/min : 350  
C-rod trav.mm : 4.70...4.90  
C-rod trav.mm : 2.00  
Speed 1/min : 770...830

#### SWITCH-OVER POINT

Speed 1/min : 290 (310)

#### ROTATIONAL-SPEED LIMITATION

#### 1st version

1mm control-rod travel less than

full-load trav.mm: 11.60  
Speed 1/min : 910...920

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 195.0...215.0  
                  1000H.: (191.0...219.0)  
Contr.-rod trav.mm: 14.00...15.00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 4.70...4.90

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 15,6 F  
Edition : 17.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 231 128  
Injection pump  
Pump designation : PES8P110A12ORS3111  
Governor  
Governor design. : RSV400...1050P2/435

Customer-spec. information  
Customer : JOHN DEERE

Engine : 8955 T

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 40...45  
Overflow valve : 1 457 413 010  
Inlet press., bar : 1.5  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015  
Outside diameter  
x Wall thickness  
x Length mm : 6,00x3,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Prestroke mm : 3,45...3,55  
                  : (3,40...3,60)  
Contr.-rod trav.mm: 10,50  
Cam sequence : 1-5-6-3-4-2-7-8

SD ang. spacing°CS: 0-45-90-135-180-225-

Tolerance + - ° : 270-315  
                  : 0,59 (0,75)

## BASIC SETTING

1st speed 1/mi: 1050  
-----  
Contr.-rod trav.mm: 10,00  
-----  
Del.quantity cm3/ : 14,7...14,9  
-----  
100H.: (-)  
-----  
Dispersion cm3/ : 0,4  
-----  
100H.: (-)  
-----  
2nd speed 1/min: 400  
Contr.-rod trav. m: 5,20  
Del.quantity cm3/ : 2,2...2,8  
100H.: (-)  
Dispersion cm3/ : 0,4  
100H.: (-)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0,30...1,70

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1050  
Charge press. hPa : 670  
Del.quantity cm3/ : 147,0...149,0  
1000H.: (-)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 39,5...47,5

## Testing:

1st c-rod trav.mm : 9,00  
Speed 1/min : 1095...1105  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1155...1185  
4th speed 1/min : 1275  
C-rod trav.mm : 0,30...1,70

## LOWEST RATED SPEED I

Control-lever  
position degrees: 17...25  
Setting point w/out aux. spring  
Speed 1/min : 400  
Contr.-rod trav.mm: 4,70

## Testing:

Speed 1/min : 100

C-rod trav.mm min : 16,00  
Speed 1/min : 400  
C-rod trav.mm : 5,10...5,30  
C-rod trav.mm : 2,00  
Speed 1/min : 565...625  
Speed 1/min : 800  
C-rod trav.mm max : 1,00

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1050  
C-rod trav.mm : 9,95...10,05  
2nd speed 1/min : 750  
C-rod trav.mm : 10,85...11,15  
3rd speed 1/min : 550  
C-rod trav.mm : 9,45...9,55

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 390  
Contr.-rod trav.mm: 10,65...10,75

Measurement

Speed 1/min : 500

1st pressure hPa : 280  
C-rod trav.mm : 9,70...9,90

#### SWITCH-OVER POINT

Speed 1/min : 400...700

#### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 670  
Speed 1/min : 750  
Del.quantity cm3/ : 163,5...166,5  
1000H.: (-)

Charge press. hPa : -  
Speed 1/min : 550  
Del.quantity cm3/ : 130,0...134,0  
1000H.: (-)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9,00  
Speed 1/min : 1095...1105

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 180,0...200,0  
1000H.: (-)

#### HIGH IDLE

Speed 1/min : 1155  
Del.quantity cm3/ : 37,0...47,0  
1000H.: (-)

#### LOW IDLE

Speed 1/min : 400  
Contr.-rod trav.mm: 22,0...28,0  
Del.quantity cm3/ : (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SCA 11,0 V8  
Edition : 12.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
  
Combination no. : 9 400 087 373  
  
Injection pump  
Pump designation : PE6P120A72ORS7004  
EP type number : 0 412 626 801  
Governor  
Governor design. : RSV350...1050P1/481  
Governor no. : 9 420 082 322

Customer-spec. information  
Customer : SCANIA

Engine : DS11

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025  
  
Inlet press., bar : 1.5  
  
Calibrating nozzle-holder  
assembly : 1 688 901 019  
  
Opening  
pressure, bar : 207...210  
  
Perforated-plate  
diameter mm : 0,8  
  
Test inj. tubing : 1 680 750 015  
  
Outside diameter  
x Wall thickness  
x Length mm : 6,00x1,50x600  
  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----  
  
START OF DELIVERY  
Test pressure, bar: 25...27  
  
Prestroke mm : 5,00...5,10  
                  : (4,95...5,15)  
Contr.-rod trav.mm: 9,00...12,00



Cam sequence : 1-5-3-6-2-4  
SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0,5 (0,75)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1050  
-----  
Contr.-rod trav.mm: 12,80...12,90  
-----  
Del.quantity cm3/ : 21,5...21,7  
-----  
100H.: (21,2...22,0)  
-----  
Dispersion cm3/ : 0,60  
-----  
100H.: (0,90)

#### SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0,30...1,40

Governor-spring reload  
Notch setting x : 6,0

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1050  
Del.quantity cm3/ : 212,5...217,5  
1000H.: (212,5...220,5)  
Dispersion cm3/ : 6,0  
1000H.: (9,0)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...58

#### Testing:

1st c-rod trav.mm : 11,80  
Speed 1/min : 1090...1100  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1170...1200  
4th speed 1/min : 1250  
C-rod trav.mm : 0,30...1,70

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 20...28  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 5,00

Speed 1/min : 350  
C-rod trav.mm : 5,50  
C-rod trav.mm : 2,00  
Speed 1/min : 420...480

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 208,0...220,0  
1000H.: (206,0...222,0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11,80  
Speed 1/min : 1090...1100

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 240,0...290,0  
1000H.: (-)  
Contr.-rod trav.mm: 20,00...21,00

#### LOW IDLE

Speed 1/min : 350  
Contr.-rod trav.mm: 5,40...5,60  
Del.quantity cm3/ : 12,0...18,0  
1000H.: (9,0...21,0)  
Dispersion cm3/ : 8,0  
1000H.: (12,0)

#### Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm  
Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 6,1 A4  
Edition : 12.8.87  
Superceeded : 12.85  
Calibrating oil : ISO-4113

Combination no. : 9 400 093 227

Injection pump  
Pump designation : PES6A85D410RS2415  
EP type number : 9 400 093 006  
Governor  
Governor design. : RSV325...1150A1B  
1111L  
Governor no. : 9 420 C92 009

Customer-spec. information  
Customer : DEUTZ ARG.

Engine : BF6L913

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.0

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 003

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1,90...2,00  
: (1,85...2,05)

Contr.-rod trav.mm: 9,00...12,00

Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
Tolerance + - : 0,5 (0,75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1150  
-----  
Contr.-rod trav.mm: 11,30...11,40  
-----  
Del.quantity cm3/ : 7,2...7,3  
-----  
100H.: (7,0...7,5)  
-----  
Dispersion cm3/ : 0,30  
-----  
100H.: (0,50)  
-----  
2nd speed 1/min: 325  
Contr.-rod trav. m: 7,90...8,10  
Del.quantity cm3/ : 0,9...1,3  
100H.: (0,7...1,5)  
Dispersion cm3/ : 0,25  
100H.: (0,45)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Cont.-rod travelmm: 0,30...1,00

Governor-spring reload  
Notch setting x : 5,0

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1150  
Del.quantity cm3/ : 72,5...73,5  
1000H.: (70,5...75,5)  
Dispersion cm3/ : 3,0  
1000H.: (5,0)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 56...64

## Testing:

1st c-rod trav.mm : 10,30  
Speed 1/min : 1190...1200  
2nd c-rod trav.mm : 4,00  
Speed 1/min : 1220...1250  
4th speed 1/min : 1350  
C-rod trav.mm : 0,30...1,70

## LOWEST RATED SPEED I

Control-lever  
position degrees: 23...31  
Setting point w/out aux. spring  
Speed 1/min : 325  
Contr.-rod trav.mm: 7,50

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 19,00  
Speed 1/min : 325  
C-rod trav.mm : 8,00  
C-rod trav.mm : 2,00  
Speed 1/min : 540...610

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 1150  
C-rod trav.mm : 11,30...11,40  
2nd speed 1/min : 500  
C-rod trav.mm : 13,00...13,10  
3rd speed 1/min : 800  
C-rod trav.mm : 12,20...12,50

FUEL-DELIVERY CHARACTERISTICS  
Speed 1/min : 500  
Del.quantity cm<sup>3</sup>/ : 78,5...80,5  
1000H.: (76,0...83,0)  
Speed 1/min : 800  
Del.quantity cm<sup>3</sup>/ : 75,5...77,5  
1000H.: (73,0...80,0)

ROTATIONAL-SPEED LIMITATION  
1st version  
1mm control-rod travel less than

full-load trav.mm: 10,30  
Speed 1/min : 1190...1200

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Contr.-rod trav.mm: 19,00...21,00

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DEE 7,6 V  
Edition : 17.8.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 9 400 230 007  
Injection pump  
Pump designation : PES6A95D41ORS2560  
Governor  
Governor design. : RSV400...1100A7B  
2044L

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466 T

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 413 385 007  
Inlet press., bar : 1.5  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 008  
Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Prestroke mm : 1,85...1,95  
: (1,80...2,00)  
Cam sequence : 1-5-3-6-2-4

SD eng. spacing °CS: 0-60-120-180-240-300  
Tolerance + - : 0,50 (0,75)

## BASIC SETTING

1st speed 1/mi: 1080  
-----  
Contr.-rod trav.mm: 10,20  
-----  
Del.quantity cm3/ : 9,5...9,7  
-----  
100H.: (-)  
-----  
Dispersion cm3/ : 0,30  
-----  
100H.: (-)  
-----  
2nd speed 1/min: 400  
Contr.-rod trav. m: 5,80  
Del.quantity cm3/ : 1,2...1,6  
100H.: (-)

## SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed 1/min: 800  
Contr.-rod travelmm: 0,30...0,70

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1080  
Del.quantity cm3/ : 95,0...97,0  
1000H.: (93,0...99,0)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 66...74

## Testing:

1st c-rod trav.mm : 9,20  
Speed 1/min : 1115...1125  
2nd c-rod trav.mm : 5,00  
Speed 1/min : 1145  
4th speed 1/min : 1200  
C-rod trav.mm : 0,30...1,70

## LOWEST RATED SPEED I

Control-lever  
position degrees: 17...25  
Setting point w/out aux. spring  
Speed 1/min : 400  
Contr.-rod trav.mm: 5,80

## Testing:

Speed 1/min : 100  
C-rod trav.mm min : 19,00  
Speed 1/min : 400  
C-rod trav.mm : 5,70...5,90  
C-rod trav.mm : 2,00  
Speed 1/min : 520...580

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100  
C-rod trav.mm : 0,00...0,10  
2nd speed 1/min : 750  
C-rod trav.mm : 0,00...0,20  
3rd speed 1/min : 450  
C-rod trav.mm : 0,70...1,30

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 9,20  
Speed 1/min : 1115...1125

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 165,0...185,0  
1000H.: (-)

HIGH IDLE

Speed 1/min : 1145  
Del.quantity cm3/ : 23,0...33,0  
1000H.: (-)

LOW IDLE

Speed 1/min : 400  
Del.quantity cm3/ : 12,0...16,0

Remarks:

: JOHN DEERE  
: NO. AR 88752

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 9,0 G  
 Edition : 17.8.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 230 036  
 Injection pump  
 Pump designation : PES8A95D32ORS2619  
 Governor  
 Governor design. : RQV325...1600AB1143R

Customer-spec. information  
 Customer : IHC

Engine : D 9 L

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 40...45

Overflow valve : 1 417 413 019

Inlet press., bar : 2.5

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Prestroke mm : 2,95...3,05  
 : (2,90...3,10)  
 Contr.-rod trav.mm: 10,50  
 Cam sequence : 1-8-7-3-6-5-4-2

SD ang. spacing°CS: 0-45-90-135-180-225-

Tolerance + - ° : 270-315  
 : 0,50 (0,75)

## BASIC SETTING

1st speed 1/mi: 1600  
 -----  
 Contr.-rod trav.mm: 12,80  
 -----  
 Del.quantity cm3/ : 8,9...9,1  
 -----  
 100H.: (-)  
 -----  
 Dispersion cm3/ : 0,3  
 -----  
 100H.: (-)  
 -----  
 2nd speed 1/min: 325  
 Contr.-rod trav. m: 7,60  
 Del.quantity cm3/ : 0,9...1,5  
 100H.: (-)  
 Dispersion cm3/ : 0,3  
 100H.: (-)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1600  
 Del.quantity cm3/ : 89,0...91,0  
 1000H.: (-)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 63,5...71,5

Testing:  
 1st c-rod trav.mm : 11,80  
 Speed 1/min : 1640...1650  
 2nd c-rod trav.mm : 4,00  
 Speed 1/min : 1820...1850  
 4th speed 1/min : 1925  
 C-rod trav.mm : 0,00...1,00

## LOWEST RATED SPEED I

Control-lever  
 position degrees: 8...16

Testing:  
 Speed 1/min : 100  
 C-rod trav.mm min : 8,50  
 Speed 1/min : 325  
 C-rod trav.mm : 7,50...7,70  
 C-rod trav.mm : 2,00  
 Speed 1/min : 855...915  
 Speed 1/min : 100  
 C-rod trav.mm max : 9,30

## CONSTANT REGULATION

Speed 1/min : 370...450

### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1600  
C-rod trav.mm : 12,70...12,90  
2nd speed 1/min : 100  
C-rod trav.mm : 12,70...12,90

### SWITCH-OVER POINT

Speed 1/min : 210 (270)

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1000  
Del.quantity cm<sup>3</sup>/ : 86,0  
1000H.: (-)

### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11,80  
Speed 1/min : 1640...1650

### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 78,0...98,0  
1000H.: (-)  
Contr.-rod trav.mm: 14,20

### HIGH IDLE

Speed 1/min : 1835  
Dispersion cm<sup>3</sup>/ : 4,0  
1000H.: (-)

### LOW IDLE

Speed 1/min : 325  
Del.quantity cm<sup>3</sup>/ : 9,0...15,0  
1000H.: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : IHC 9,4 A3  
 Edition : 17.8.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 9 400 231 057  
 Injection pump  
 Pump designation : PES8P100A921/SRS286  
 Governor  
 Governor design. : RQV400...1250PAS41K

Customer-spec. information  
 Customer : IHC

Engine : DVT 800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 40...45  
 Overflow valve : 1 417 413 040  
 Inlet press., bar : 2.8  
 Calibrating nozzle-holder  
 assembly : 1 688 901 017  
 Opening  
 pressure, bar : 207

Test inj. tubing : 9 681 230 713

Outside diameter  
 x Wall thickness  
 x Length mm : 6,35X2,10X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Prestroke mm : 2,75...2,85  
 : (2,70...2,90)  
 Contr.-rod trav.mm: 10,50  
 Cam sequence : 1-8-4-2-7-3-6-5

SD ang. spacing°CS: 0-45-90-135-180-225-

Tolerance + - ° : 270-315  
 : 0,50 (0,75)

## BASIC SETTING

1st speed 1/mi: 1250  
 -----  
 Contr.-rod trav.mm: 10,30  
 -----  
 Del.quantity cm3/ : 11,4...11,6  
 -----  
 100H.: (-)  
 -----  
 Dispersion cm3/ : 0,4  
 -----  
 100H.: (-)  
 -----  
 2nd speed 1/min: 400  
 Contr.-rod trav. m: 4,90  
 Del.quantity cm3/ : 1,8...2,2  
 100H.: (-)  
 Dispersion cm3/ : 0,5  
 100H.: (-)

## SLEEVE POSITION

Control-lever position  
 Degree: 60...66  
 Speed 1/min: 1320  
 Contr.-rod travelmm: 15,50...17,50

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
 Speed 1/min: 1250  
 Charge press. hPa : 1060  
 Del.quantity cm3/ : 114,0...116,0  
 1000H.: (112,0...118,0)

## HIGHEST RATED SPEED

1st version  
 Control-lever  
 position degrees: 55...61

Testing:  
 1st c-rod trav.mm : 9,30  
 Speed 1/min : 1300...1310  
 2nd c-rod trav.mm : 4,00  
 Speed 1/min : 1385...1415  
 4th speed 1/min : 1640  
 C-rod trav.mm : 0,00...1,00

## LOWEST RATED SPEED I

Control-lever  
 position degrees: 10...16

Testing:  
 Speed 1/min : 200  
 C-rod trav.mm min : 7,10  
 Speed 1/min : 400  
 C-rod trav.mm : 4,80...5,00



C-rod trav.mm : 2,00  
Speed 1/min : 565...625

#### CONSTANT REGULATION

Speed 1/min : 420...480

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1250  
C-rod trav.mm : 10,25...10,35

2nd speed 1/min : 900  
C-rod trav.mm : 11,25...11,35

3rd speed 1/min : 700  
C-rod trav.mm : 10,45...10,55

compensator (LDA,ADA,ALDA)

#### 1st version

##### Setting

Speed 1/min : 800  
Pressure hPa : 145  
Contr.-rod trav.mm: 8,90...9,10

##### Measurement

Speed 1/min : 800

1st pressure hPa : 365  
C-rod trav.mm : 9,70...9,90

#### SWITCH-OVER POINT

Speed 1/min : 240 (300)

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 1060  
Speed 1/min : 900  
Del.quantity cm3/ : 121,0...127,0  
1000H.: (120,0...128,0)

Charge press. hPa : -  
Speed 1/min : 800  
Del.quantity cm3/ : 85,5...93,5  
1000H.: (85,5...94,5)

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 9,30  
Speed 1/min : 1300...1310

#### STARTING FUEL DELIVERY

Speed 1/min : 100

L20

Del.quantity cm3/ : 188,0...228,0  
1000H.: (-)

Contr.-rod trav.mm: 20,50

#### LOW IDLE

Speed 1/min : 400  
Del.quantity cm3/ : 18,0...22,0  
1000H.: (-)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 2,4 V7  
Edition : 09.03.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 400 074 909

Injection pump  
Pump designation : PES4M55C320RS107-2  
EP type number : 0 410 054 962  
Governor  
Governor design. : RSF375/1900M18-4  
Governor no. : 0 420 021 096

Customer-spec. information  
Customer : DB

Engine : OM616 (2.4 L)

1st version kW : 53.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 012

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.20...2.30  
: (2.15...2.35)

Contr.-rod trav.mm: 20.00...0.00  
Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0.00 (1.00)

### BASIC SETTING

1st speed 1/mi: 1000  
-----  
Contr.-rod trav.mm: 13.00...13.10  
-----  
Del.quantity cm3/ : 3.7...3.8  
100H.: (3.6...3.9)  
-----  
Dispersion cm3/ : 0.2  
100H.: (0.3)  
-----  
2nd speed 1/min: 375.0  
Contr.-rod trav. m: 6.1...6.3  
Del.quantity cm3/ : 0.6...0.7  
100H.: (0.5...0.9)  
Dispersion cm3/ : 0.1  
100H.: (0.1)

### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1000  
Del.quantity cm3/ : 37.5...38.5  
1000H.: (36.5...39.5)  
Dispersion cm3/ : 2.50  
1000H.: (3.00)

### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 50...0  
3rd c-rod trav.mm : 7.80...8.20  
Speed 1/min : 0...2150  
4th speed 1/min : 2950  
C-rod trav.mm : 0.00...1.00

### SET IDLE CONTROL-LEVER

POSITION  
Speed 1/min : 1000  
Contr.-rod trav.mm: 1.4...1.5

### LOWEST RATED SPEED I

Control-lever  
position degrees: 9...13  
Setting point w/out aux. spring  
Speed 1/min : 375  
Contr.-rod trav.mm: 6.2

### Testing:

Speed 1/min : 250  
C-rod trav.mm min : 10.50

Speed 1/min : 375  
C-rod trav.mm : 6.10...6.30  
C-rod trav.mm : 2.00  
Speed 1/min : 720...820  
Speed 1/min : 1000  
C-rod trav.mm max : 1.50

### SET IDLE AUXILIARY SPRING

Speed 1/min : 450  
Contr.-rod trav.mm: 4.9...5.1  
: (4.8...5.2)

### TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1000  
C-rod trav.mm : 13.00...13.10  
2nd speed 1/min : 1800  
C-rod trav.mm : 12.00...12.20

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1800  
Del.quantity cm3/ : 37.5...39.5  
1000H.: (36.5...40.5)  
Dispersion cm3/ : 2.50  
1000H.: (3.00)

### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 53.0  
1000H.: (53.0)  
Contr.-rod trav.mm: 20.10

### HIGH IDLE

Speed 1/min : 2150  
Contr.-rod trav.mm: 7.80...8.20  
Del.quantity cm3/ : 18.5...22.5  
1000H.: (17.5...23.5)  
Dispersion cm3/ : 2.50  
1000H.: (3.00)

### LOW IDLE

Speed 1/min : 375  
Contr.-rod trav.mm: 6.10...6.30  
Del.quantity cm3/ : 6.0...7.0  
1000H.: (5.5...9.0)  
Dispersion cm3/ : 1.00  
1000H.: (1.50)

### Remarks:

### CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 47<sup>o</sup>. No change in control-rod travel after switchover point up to 550 1/min,

control-lever position  $30^\circ$ . Speed  
range 350 1/min...450 1/min.

TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.

With  $n = 375$  1/min. and  $p_u = 450$  mbar,

control rod must move quickly to

control-rod travel = 0 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 2,0 P12  
Edition : 10.04.87  
Superceeded :  
Calibrating oil : ISO-4113  
Combination no. : 0 400 074 911  
Injection pump  
Pump designation : PES4M55C320RS163  
EP type number : 0 410 054 961  
Governor  
Governor design. : RSF360/2300M60-6  
Governor no. : 0 420 021 091

Customer-spec. information  
Customer : DB

Engine : 0M601 (2.0)  
1st version kW : 52.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 469 990 351  
Inlet press., bar : 1.00  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 014  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80  
: (1.65...1.85)  
Contr.-rod trav.mm: 20.00...22.00  
Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0.00 (1.00)

SD mark cyl. no. : 1

### BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 11.10...11.20

Del.quantity cm<sup>3</sup>/ : 3.0...3.1

100H.: (2.9...3.2)

Dispersion cm<sup>3</sup>/ : 0.2

100H.: (0.3)

2nd speed 1/min: 335.0

Contr.-rod trav. m: 5.0...5.2

Del.quantity cm<sup>3</sup>/ : 0.5...0.6

100H.: (0.4...0.9)

Dispersion cm<sup>3</sup>/ : 0.1

100H.: (0.1)

### FULL-LOAD DELIV. AT FULL-LOAD STOP

#### 1st version

Speed 1/min: 1000

Charge press. hPa : 1100

Del.quantity cm<sup>3</sup>/ : 30.5...31.5

1000H.: (29.5...32.5)

Dispersion cm<sup>3</sup>/ : 2.50

1000H.: (3.00)

### HIGHEST RATED SPEED

#### 1st version

Control-lever

position degrees: 50...0

3rd c-rod trav.mm : 6.80...7.20

Speed 1/min : 0...2500

4th speed 1/min : 2950

C-rod trav.mm : 0.00...1.00

### SET IDLE CONTROL-LEVER

#### POSITION

Speed 1/min : 1000

Contr.-rod trav.mm: 1.9...2.0

### LOWEST RATED SPEED I

Control-lever

position degrees: 10...14

Setting point w/out aux. spring

Speed 1/min : 335

Contr.-rod trav.mm: 5.1

### Testing:

Speed 1/min : 250

C-rod trav.mm min : 8.50

Speed 1/min : 335

C-rod trav.mm : 5.00...5.20

C-rod trav.mm : 2.50

Speed 1/min : 1000

C-rod trav.mm max : 2.00

### SET IDLE AUXILIARY SPRING

Speed 1/min : 400

Contr.-rod trav.mm: 3.80...4.00

: (3.70...4.10)

### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 11.10...11.20

2nd speed 1/min : 1800

C-rod trav.mm : 10.50...10.70

3rd speed 1/min : 2200

C-rod trav.mm : 10.00...10.20

### Measurement

Speed 1/min : 1000

1st pressure hPa : 900

C-rod trav.mm : 0.50...0.70

2nd pressure hPa : 750

C-rod trav.mm : 1.80...2.20

### FUEL-DELIVERY CHARACTERISTICS

#### 1st version

Charge press. hPa : 1100

Speed 1/min : 1800

Del.quantity cm<sup>3</sup>/ : 33.5...35.0

1000H.: (32.5...36.0)

Dispersion cm<sup>3</sup>/ : 2.50

1000H.: (3.00)

Charge press. hPa : 1100

Speed 1/min : 2200

Del.quantity cm<sup>3</sup>/ : 31.0...33.0

1000H.: (30.0...34.0)

Dispersion cm<sup>3</sup>/ : 2.50

1000H.: 3.00

### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 55.0

1000H.: (55.0)

Contr.-rod trav.mm: 20.10

### HIGH IDLE

#### 1st version

Charge press. hPa : 1100  
Speed 1/min : 2500  
Contr.-rod trav.mm: 6.80...7.20  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000H.: (15.0...21.0)  
Dispersion cm<sup>3</sup>/ : 2.50  
1000H.: (3.00)

#### LOW IDLE

Speed 1/min : 335  
Contr.-rod trav.mm: 5.00...5.20  
Del.quantity cm<sup>3</sup>/ : 5.0...6.0  
1000H.: (4.5...9.0)  
Dispersion cm<sup>3</sup>/ : 1.00  
1000H.: (1.50)

#### Remarks:

#### CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49<sup>o</sup>, max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
Control-lever position 46.5<sup>o</sup>,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

#### START-OF-DELIVERY ADJUSTMENT

-Start-of delivery adjustment and lock  
after start-of-delivery mean value of  
all cylinders, 17.3...17.7<sup>o</sup>  
(17.2...17.8<sup>o</sup>) angular displacement of  
the cam after cylinder 1.

#### TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.  
With n = 335 1/min, and p<sub>u</sub> = 450 mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

Start-of-delivery spacing (difference)  
between max/min value 1<sup>o</sup> cam angle  
maximum.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 2,5 F6  
Edition : 02.06.87  
Superceeded : -  
Calibrating oil : ISO-4113

Combination no. : 0 400 075 959

Injection pump  
Pump designation : PES5M55C32ORS166  
EP type number : 0 410 055 980  
Governor  
Governor design. : RSF340/2300M64-1  
Governor no. : 0 420 021 050

Customer-spec. information  
Customer : DB

Engine : OM602A

1st version kW : 92.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 1.70...1.80  
: (1.65...1.85)

Contr.-rod trav.mm: 20.00...22.00

Cam sequence : 1- 2- 4- 5- 3



SD ang. spacing<sup>o</sup>CS: 0-72-144-216-288  
Tolerance + - : 0.00 (1.00)

SD mark cyl. no. : 1

#### BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 14.00...14.10

Del.quantity cm<sup>3</sup>/ : 5.1...5.2

100H.: (5.0...5.3)

Dispersion cm<sup>3</sup>/ : 0.2

100H.: (0.3)

2nd speed 1/min: 315.0

Contr.-rod trav. m: 4.9...5.1

Del.quantity cm<sup>3</sup>/ : 0.5...0.6

100H.: (0.4...0.8)

Dispersion cm<sup>3</sup>/ : 0.1

100H.: (0.15)

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

##### 1st version

Speed 1/min: 1000

Charge press. hPa : 1850

Del.quantity cm<sup>3</sup>/ : 51.0...52.0

1000H.: (50.0...53.0)

Dispersion cm<sup>3</sup>/ : 2.50

1000H.: (3.00)

#### HIGHEST RATED SPEED

##### 1st version

##### Control-lever

position degrees: 50...0

3rd c-rod trav.mm : 8,10...8,50

Speed 1/min : 0...2500

4th speed 1/min : 2950

C-rod trav.mm : 0.00...1.00

#### SET IDLE CONTROL-LEVER

##### POSITION

Speed 1/min : 1000

Contr.-rod trav.mm: 1,7...1,8

#### LOWEST RATED SPEED I

##### Control-lever

position degrees: 8...12

Setting point w/out aux. spring

Speed 1/min : 315

Contr.-rod trav.mm: 5.0

#### Testing:

Speed 1/min : 220

C-rod trav.mm min : 8.00

Speed 1/min : 315

C-rod trav.mm : 4.90...5.10

C-rod trav.mm : 2.50

Speed 1/min : 525...625

Speed 1/min : 1000

C-rod trav.mm max : 1.80

#### SET IDLE AUXILIARY SPRING

Speed 1/min : 380

Contr.-rod trav.mm: 4,2...4,4

: (4,1...4,5)

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1000

C-rod trav.mm : 14.00...14.10

2nd speed 1/min : 1600

C-rod trav.mm : 13.30...13.50

3rd speed 1/min : 2200

C-rod trav.mm : 12.80...13.00

compensator (LDA, ADA, ALDA)

#### 1st version

##### Setting

Speed 1/min : 1000

Pressure hPa : 1600

Contr.-rod trav.mm: 0.50...0.90

##### Measurement

Speed 1/min : 1000

1st pressure hPa : 1050

C-rod trav.mm : 3.90...4.10

2nd pressure hPa : 750

C-rod trav.mm : 5.80...6.20

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 1850

Speed 1/min : 1600

Del.quantity cm<sup>3</sup>/ : 50.0...51.5

1000H.: (49.0...52.5)

Dispersion cm<sup>3</sup>/ : 2.50

1000H.: (3.00)

Charge press. hPa : 1850

Speed 1/min : 2200

Del.quantity cm<sup>3</sup>/ : 48.5...50.5

1000H.: (47.5...51.5)

Dispersion cm<sup>3</sup>/ : 2.50

1000H.: 3.00

Charge press. hPa : 1050

Speed 1/min : 1000

Del. quantity cm<sup>3</sup>/ : 33.0...34.0  
1000H.: (32.0...35.0)  
Dispersion cm<sup>3</sup>/ : 2.50  
1000H.: 3.00

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : 52.0...0.0  
1000H.: (52.0...0.0)  
Contr.-rod trav.mm: 20.10...0.00

#### HIGH IDLE

1st version  
Charge press. hPa : 1850  
Speed 1/min : 2500  
Contr.-rod trav.mm: 8.10...8.50  
Del. quantity cm<sup>3</sup>/ : 31.0...35.0  
1000H.: (30.0...36.0)  
Dispersion cm<sup>3</sup>/ : 2.50  
1000H.: (3.00)

#### LOW IDLE

Speed 1/min : 315  
Contr.-rod trav.mm: 4.90...5.10  
Del. quantity cm<sup>3</sup>/ : 5.0...6.0  
1000H.: (4.0...8.5)  
Dispersion cm<sup>3</sup>/ : 1.00  
1000H.: (1.50)

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop  
Speed 1/min : 340  
Contr.-rod trav.mm: 12,4...13,8  
Del. quantity cm<sup>3</sup>/ : 41,0...49,0  
1000H.: -  
Electric current A: 1,8  
Control lever at full-load stop  
Speed 1/min : 2950  
Contr.-rod trav.mm: 0...1,0  
Electric current  
short-duration A : 3,0  
Starting test  
Speed 1/min : 100  
Del. quantity cm<sup>3</sup>/ : -  
min. 1000H.: 55,0

#### Remarks:

##### CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max.  
0.2 mm control-rod travel deduction allowable after switchover point (of starting cam) up to 1000 1/min.  
Control-lever position 46.5°

control-rod travel deduction must be greater than 0.2 mm after switchover point (of starting cam).

#### SETTING OF FBG

-Setting and locking of FBG according to start-of-delivery average of all cylinders 19.3...19.7° (19.2...19.8°).  
Cam angle according to cyl. 1.

Start-of-delivery spacing (difference) between max/min value 1° cam angle maximum.

#### TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.  
With n = 315 1/min. and pu = 450 mbar, control rod must move quickly to control-rod travel = 0 mm

Testing and adjusting the control-rod-travel sensor with evaluation circuit R2.1.3

#### Receiving inspection

Shift control lever to full-load stop. Set 13.5 V at stabilizer. Apply 1850 hPa to ALDA. Run up to speed of 1000 1/min; a voltage of 3.230...3.310 (3.190...3.350) V must be displayed on the digital voltmeter.  
Adjustment of the control-rod-travel sensor

At a speed of 1000 1/min, set fuel delivery at 23.0...24.0 (22.0...25.0) ccm/1000 strokes with control lever. Shift control-rod-travel sensor until U = 2.095...2.105 (2.098...2.102) V is indicated. Tighten fastening screws with 1...2 Nm. Control lever to full-load stop; voltage value of 3.230...3.310 V must be attained.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 2,5 F3  
 Edition : 07.11.86  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 400 075 966  
 Injection pump  
 Pump designation : PESSM55C32ORS158  
 EP type number : 0 410 055 986  
 Governor  
 Governor design. : RSF340/2300M64-11  
 Governer no. : 0 420 021 086

Customer-spec. information  
 Customer : DB

Engine : OM602A

1st version kW : 92.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar : 30...32

Prestroke mm : 2.20...2.30  
 : (2.15...2.35)

Contr.-rod trav.mm : 20.00...22.00

Cam sequence : 1- 2- 4- 5- 5

MO3

SD ang. spacing<sup>0</sup>CS: 0-72-144-216-288  
 Tolerance + - : 0.00 (1.00)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm3/ : 5.1...5.2

100H.: (5.0...5.3)

Dispersion cm3/ : 0.2

100H.: (0.3)

2nd speed 1/min: 315.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 0.5...0.6

100H.: (0.4...0.9)

Dispersion cm3/ : 0.1

100H.: (0.1)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 1850

Del.quantity cm3/ : 51.0...52.0

1000H.: (50.0...53.0)

Dispersion cm3/ : 2.50

1000H.: (3.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...0

3rd c-rod trav.mm : 8,10...8,5

Speed 1/min : 2500

4th speed 1/min : 2950

C-rod trav.mm : 0.00...1.00

## SET IDLE CONTROL-LEVER

POSITION

Speed 1/min : 1000

Contr.-rod trav.mm: 1,7...1,8

## LOWEST RATED SPEED I

Control-lever

position degrees: 8...12

Setting point w/out aux. spring

Speed 1/min : 315

Contr.-rod trav.mm: 5.5

Testing:

Speed 1/min : 220  
C-rod trav.mm min : 8.00  
Speed 1/min : 315  
C-rod trav.mm : 5.40...5.60  
C-rod trav.mm : 2.50  
Speed 1/min : 540...640  
Speed 1/min : 1000  
C-rod trav.mm max : 1.80

SET IDLE AUXILIARY SPRING

Speed 1/min : 380  
Contr.-rod trav.mm: 4,20...4,40  
: (4,10...4,50)

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1000  
C-rod trav.mm : 13.90...14.00  
2nd speed 1/min : 1600  
C-rod trav.mm : 13.20...13.40  
3rd speed 1/min : 2200  
C-rod trav.mm : 12.30...12.50

compensator (LDA,ADA,ALDA)

1st version

Setting  
Speed 1/min : 1000  
Pressure hPa : 1600  
Contr.-rod trav.mm: 0.50...0.90

Measurement

Speed 1/min : 1000  
1st pressure hPa : 1050  
C-rod trav.mm : 3.90...4.10  
2nd pressure hPa : 750  
C-rod trav.mm : 5.80...6.20

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 1850  
Speed 1/min : 1600  
Del.quantity cm3/ : 50.0...51.5  
1000H.: (49.0...52.5)  
Dispersion cm3/ : 2.50  
1000H.: (3.00)  
Charge press. hPa : 1850  
Speed 1/min : 2200  
Del.quantity cm3/ : 48.5...50.5  
1000H.: (47.5...51.5)  
Dispersion cm3/ : 2.50  
1000H.: 3.00  
Charge press. hPa : 1050  
Speed 1/min : 1000

Del.quantity cm3/ : 33.0...34.0  
1000H.: (32.0...35.0)  
Dispersion cm3/ : 2.50  
1000H.: 3.00

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 52.0...0.0  
1000H.: (52.0...0.0)  
Contr.-rod trav.mm: 20.10...0.00

HIGH IDLE

1st version

Charge press. hPa : 1850  
Speed 1/min : 2500  
Contr.-rod trav.mm: 8.10...8.50  
Del.quantity cm3/ : 29.0...33.0  
1000H.: (28.0...34.0)  
Dispersion cm3/ : 2.50  
1000H.: (3.00)

LOW IDLE

Speed 1/min : 315  
Contr.-rod trav.mm: 5.40...5.60  
Del.quantity cm3/ : 5.5...6.5  
1000H.: (4.5...9.0)  
Dispersion cm3/ : 1.00  
1000H.: (1.50)

SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Control lever at idle stop

Speed 1/min : 340  
Contr.-rod trav.mm: 12,4...13,8  
Del.quantity cm3/ : -  
1000H.: (41,0...49,0)

Electric current A: 1,8

Control lever at full-load stop

Speed 1/min : 2950  
Contr.-rod trav.mm: 0,0...1,0

Electric current

short-duration A : 3,0

Starting test

Speed 1/min : 100  
Del.quantity cm3/ : -  
min. 1000H.: 55,0

Remarks:

SETTING OF FBG

-Setting and locking of FBG according to start-of-delivery average of all cylinders 19.3...19.7° (19.2...19.8°).  
Cam angle according to cyl. 1.

Start-of-delivery spacing (difference)  
between max/min value 1° cam angle  
maximum.

#### CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position 49°, max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
Control-lever position 46.5°,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

#### TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.  
With  $n = 315$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

Testing and adjusting the control-rod-  
travel sensor with evaluation circuit  
R2.1.3

Receiving inspection

Shift control lever to full-load stop.  
Set 13.5 V at stabilizer. Apply  
1850 hPa to ALDA. Run up to speed of  
1000 1/min; a voltage of 3.230...3.310  
(3.190...3.350) V must be displayed  
on the digital voltmeter.

Adjustment of the control-rod travel  
sensor

At a speed of 1000 1/min, set fuel  
delivery at 23.0...24.0 (22.0...25.0)  
ccm/1000 strokes with control lever.  
Shift control-rod-travel sensor until  
 $U = 2.095...2.105$  (2.098...2.102) V is  
indicated. Tighten fastening screws  
with 1...2 Nm. Control lever to full-  
load stop; voltage value of 3.230...  
3.310 V must be attained.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 2,5 G1  
 Edition : 03.04.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 400 075 980  
 Injection pump  
 Pump designation : PESSM55C32ORS158  
 EP type number : 0 410 055 986  
 Governor  
 Governor design. : RSF340/2300M64-1  
 Governer no. : 0 420 021 050

Customer-spec. information  
 Customer : DB

Engine : OM602A

1st version kW : 92.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

## START OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.10...2.20  
 : (2.05...2.25)

Contr.-rod trav.mm: 20.00...22.00

Cam sequence : 1- 2- 4- 5- 3

MD6

SD ang. spacing<sup>o</sup>CS: 0-72-144-216-288  
 Tolerance + - : 0.00 (1.00)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm3/ : 5.1...5.2

100H.: (5.0...5.3)

Dispersion cm3/ : 0.2

100H.: (0.3)

2nd speed 1/min: 315.0

Contr.-rod trav. m: 5.4...5.6

Del.quantity cm3/ : 0.5...0.6

100H.: (0.4...0.9)

Dispersion cm3/ : 0.1

100H.: (0.1)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 1850

Del.quantity cm3/ : 51.0...52.0

1000H.: (50.0...53.0)

Dispersion cm3/ : 2.50

1000H.: (3.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...0

3rd c-rod trav.mm : 8,10...8,50

Speed 1/min : 2500

4th speed 1/min : 2950

C-rod trav.mm : 0.00...1.00

## SET IDLE CONTROL-LEVER

POSITION

Speed 1/min : 1000

Contr.-rod trav.mm: 1,7...1,8

## LOWEST RATED SPEED I

Control-lever

position degrees: 8...12

Setting point w/out aux. spring

Speed 1/min : 315

Contr.-rod trav.mm: 5.5

**Testing:**

Speed 1/min : 220  
 C-rod trav.mm min : 8.00  
 Speed 1/min : 315  
 C-rod trav.mm : 5.40...5.60  
 C-rod trav.mm : 2.50  
 Speed 1/min : 540...640  
 Speed 1/min : 1000  
 C-rod trav.mm max : 1.80

**SET IDLE AUXILIARY SPRING**

Speed 1/min : 380  
 Contr.-rod trav.mm: 4,20...4,40  
 : (4,10...4,50)

**TORQUE CONTROL**

Torque-control curve - 1st version

1st speed 1/min : 1000  
 C-rod trav.mm : 13.90...14.00  
 2nd speed 1/min : 1600  
 C-rod trav.mm : 13.20...13.40  
 3rd speed 1/min : 2200  
 C-rod trav.mm : 12.30...12.50

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
 Speed 1/min : 1000  
 Pressure hPa : 1600  
 Contr.-rod trav.mm: 0.50...0.90

**Measurement**

Speed 1/min : 1000  
 1st pressure hPa : 1050  
 C-rod trav.mm : 3.90...4.10  
 2nd pressure hPa : 750  
 C-rod trav.mm : 5.80...6.20

**FUEL-DELIVERY CHARACTERISTICS****1st version**

Charge press. hPa : 1850  
 Speed 1/min : 1600  
 Del.quantity cm3/ : 50.0...51.5  
 1000H.: (49.0...52.5)  
 Dispersion cm3/ : 2.50  
 1000H.: (3.00)

Charge press. hPa : 1850  
 Speed 1/min : 2200  
 Del.quantity cm3/ : 48.5...50.5  
 1000H.: (47.5...51.5)

Dispersion cm3/ : 2.50  
 1000H.: 3.00

Charge press. hPa : 1050  
 Speed 1/min : 1000

Del.quantity cm3/ : 33.0...34.0  
 1000H.: (32.0...35.0)  
 Dispersion cm3/ : 2.50  
 1000H.: 3.00

**STARTING FUEL DELIVERY**

Speed 1/min : 100  
 Del.quantity cm3/ : 52.0...0.0  
 1000H.: (52.0...0.0)  
 Contr.-rod trav.mm: 20.10...0.00

**HIGH IDLE****1st version**

Charge press. hPa : 1850  
 Speed 1/min : 2500  
 Contr.-rod trav.mm: 8.10...8.50  
 Del.quantity cm3/ : 29.0...33.0  
 1000H.: (28.0...34.0)  
 Dispersion cm3/ : 2.50  
 1000H.: (3.00)

**LOW IDLE**

Speed 1/min : 315  
 Contr.-rod trav.mm: 5.40...5.60  
 Del.quantity cm3/ : 5.5...6.5  
 1000H.: (4.5...9.0)  
 Dispersion cm3/ : 1.00  
 1000H.: (1.50)

**SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)****Control lever at idle stop**

Speed 1/min : 340  
 Contr.-rod trav.mm: (12,4...13,8)  
 Del.quantity cm3/ : (41,0...49,0)  
 1000H.: -

**Electric current A: 1,8****Control lever at full-load stop**

Speed 1/min : 2950  
 Contr.-rod trav.mm: (0,0...1,0)

**Electric current**

short-duration A : 3,0

**Starting test**

Speed 1/min : 100  
 Del.quantity cm3/ : -  
 min. 1000H.: 52,0

**Remarks:****SETTING OF FBG**

-Setting and locking of FBG according to start-of-delivery average of all cylinders 19.3...19.7° (19.2...19.8°).  
 Cam angle according to cyl. 1.

Start-of-delivery spacing (difference)  
between max/min value  $1^\circ$  cam angle  
maximum.

#### CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position  $49^\circ$ , max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
Control-lever position  $46.5^\circ$ ,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

#### TESTING PNEUMATIC SHUTOFF DEVICE

-Control lever at idle stop.  
With  $n = 315$  1/min. and  $p_u = 450$  mbar,  
control rod must move quickly to  
control-rod travel = 0 mm

Testing and adjusting the control-rod-  
travel sensor with evaluation circuit  
R2.1.3

#### Receiving inspection

Shift control lever to full-load stop.  
Set 13.5 V at stabilizer. Apply  
1850 hPa to ALDA. Run up to speed of  
1000 1/min; a voltage of 3.230...3.310  
(3.190...3.350) V must be displayed  
on the digital voltmeter.

#### Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel  
delivery at 23.0...24.0 (22.0...25.0)  
ccm/1000 strokes with control lever.  
Shift control-rod-travel sensor until  
 $U = 2.095...2.105$  (2.098...2.102) V is  
indicated. Tighten fastening screws  
with 1...2 Nm. Control lever to full-  
load stop; voltage value of 3.230...  
3.310 V must be attained.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 3,0 W13  
 Edition : 07.11.86  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 400 076 980  
 Injection pump  
 Pump designation : PES6M55C32ORS157  
 EP type number : 0 410 056 993  
 Governor  
 Governor design. : RSF315/2300M64-10  
 Governer no. : 0 420 021 085

Customer-spec. information  
 Customer : DB

Engine : OM603A

1st version kW : 110.0

## TEST BENCH REQUIREMENTS

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 469 990 351

Inlet press., bar : 1.00

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 30...32

Prestroke mm : 2.20...2.30  
 : (2.15...2.35)

Contr.-rod trav.mm: 20.00...22.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.00 (1.00)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1000

Contr.-rod trav.mm: 13.90...14.00

Del.quantity cm3/ : 5.1...5.2

100H.: (5.0...5.3)

Dispersion cm3/ : 0.2

100H.: (0.3)

2nd speed 1/min: 290.0

Contr.-rod trav. m: 5.3...5.5

Del.quantity cm3/ : 0.5...0.6

100H.: (0.5...0.9)

Dispersion cm3/ : 0.1

100H.: (0.1)

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1000

Charge press. hPa : 1850

Del.quantity cm3/ : 51.0...52.0

1000H.: (50.0...53.0)

Dispersion cm3/ : 2.50

1000H.: (3.00)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...0

3rd c-rod trav.mm : 8,10...8,50

Speed 1/min : 2500

4th speed 1/min : 2950

C-rod trav.mm : 0.00...1.00

## SET IDLE CONTROL-LEVER

POSITION

Speed 1/min : 1000

Contr.-rod trav.mm: 1,7...1,8

## LOWEST RATED SPEED I

Control-lever

position degrees: 8...12

Setting point w/out aux. spring

Speed 1/min : 290

Contr.-rod trav.mm: 5.4

**Testing:**

Speed 1/min : 200  
 C-rod trav.mm min : 7.00  
 Speed 1/min : 290  
 C-rod trav.mm : 5.30...5.50  
 C-rod trav.mm : 2.50  
 Speed 1/min : 510...610  
 Speed 1/min : 1000  
 C-rod trav.mm max : 1.80

**SET IDLE AUXILIARY SPRING**

Speed 1/min : 360  
 Contr.-rod trav.mm: 4,20...4,40  
 : (4,10...4,50)

**TORQUE CONTROL**

Torque-control curve - 1st version

1st speed 1/min : 1000  
 C-rod trav.mm : 13.90...14.00  
 2nd speed 1/min : 1600  
 C-rod trav.mm : 13.20...13.40  
 3rd speed 1/min : 2200  
 C-rod trav.mm : 12.30...12.50

compensator (LDA,ADA,ALDA)

**1st version**

Setting  
 Speed 1/min : 1000  
 Pressure hPa : 1600  
 Contr.-rod trav.mm: 0.50...0.90

**Measurement**

Speed 1/min : 1000  
 1st pressure hPa : 1050  
 C-rod trav.mm : 3.90...4.10  
 2nd pressure hPa : 750  
 C-rod trav.mm : 5.80...6.20

**FUEL-DELIVERY CHARACTERISTICS****1st version**

Charge press, hPa : 1850  
 Speed 1/min : 1600  
 Del.quantity cm3/ : 50.0...51.5  
 1000H.: (49.0...52.5)  
 Dispersion cm3/ : 2.50  
 1000H.: (3.00)  
 Charge press, hPa : 1850  
 Speed 1/min : 2200  
 Del.quantity cm3/ : 48.5...50.5  
 1000H.: (47.5...51.5)  
 Dispersion cm3/ : 2.50  
 1000H.: 3.00  
 Charge press, hPa : 1050  
 Speed 1/min : 1000

Del.quantity cm3/ : 33.0...34.0  
 1000H.: (32.0...35.0)  
 Dispersion cm3/ : 2.50  
 1000H.: 3.00

**STARTING FUEL DELIVERY**

Speed 1/min : 100  
 Del.quantity cm3/ : 52.0...0.0  
 1000H.: (52.0...0.0)  
 Contr.-rod trav.mm: 20.10...0.00

**HIGH IDLE****1st version**

Charge press, hPa : 1850  
 Speed 1/min : 2500  
 Contr.-rod trav.mm: 8.10...8.50  
 Del.quantity cm3/ : 29.0...33.0  
 1000H.: (28.0...34.0)  
 Dispersion cm3/ : 2.50  
 1000H.: (3.00)

**LOW IDLE**

Speed 1/min : 290  
 Contr.-rod trav.mm: 5.30...5.50  
 Del.quantity cm3/ : 5.5...6.5  
 1000H.: (5.0...9.5)  
 Dispersion cm3/ : 1.00  
 1000H.: (1.50)

**SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)**

Control lever at idle stop  
 Speed 1/min : 315  
 Contr.-rod trav.mm: (12,8...14,2)  
 Del.quantity cm3/ : -  
 1000H.: (42,0...49,0)  
 Electric current A: 1,8  
 Control lever at full-load stop  
 Speed 1/min : 2950  
 Contr.-rod trav.mm: (0,0...1,0)  
 Electric current  
 short-duration A : 3,0  
 Starting test  
 Speed 1/min : 100  
 Del.quantity cm3/ : -  
 min. 1000H.: 52,0

**Remarks:**

**SETTING OF FBG**  
 -Setting and locking of FBG according to start-of-delivery average of all cylinders 19.3...19.7° (19.2...19.8°).  
 Cam angle according to cyl. 1.

Start-of-delivery spacing (difference)  
between max/min value  $1^\circ$  cam angle  
maximum.

#### CHECKING THE PNEUMATIC SHUTOFF BOX

-Control lever up against idle stop.  
At  $n = 290$  1/min and  $p_u = 450$  mbar  
control rod must move briskly to  
control-rod travel = 0 mm

#### CHECKING THE IDLE-SPEED AUXILIARY SPRING CUTOFF

-Control-lever position  $49^\circ$ , max.  
0.2 mm control-rod travel deduction  
allowable after switchover point (of  
starting cam) up to 1000 1/min.  
Control-lever position  $46.5^\circ$ ,  
control-rod travel deduction must be  
greater than 0.2 mm after switchover  
point (of starting cam).

Testing and adjusting the control-rod-  
travel sensor with evaluation circuit  
R2.1.3

#### Receiving inspection

Shift control lever to full-load stop.  
Set 13.5 V at stabilizer. Apply  
1850 hPa to ALDA. Run up to speed of  
1000 1/min; a voltage of 3.230...3.310  
(3.190...3.350) V must be displayed  
on the digital voltmeter.

#### Adjustment of the control-rod travel sensor

At a speed of 1000 1/min, set fuel  
delivery at 23.0...24.0 (22.0...25.0)  
ccm/1000 strokes with control lever.  
Shift control-rod-travel sensor until  
 $U = 2.095...2.105$  (2.098...2.102) V is  
indicated. Tighten fastening screws  
with 1...2 Nm. Control lever to full-  
load stop; voltage value of 3.230...  
3.310 V must be attained.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : KHD 8,0 M 2  
Edition : 12.09.86  
Superceeded : 9.64  
Calibrating oil : ISO-4113  
  
Combination no. : 0 400 246 090  
  
Injection pump  
Pump designation : PE6A75D32ORS1035Z  
EP type number : 0 410 276 967  
Governor  
Governor design. : RQ250/1150AB143DR  
Governor no. : 0 420 203 034

Customer-spec. information  
Customer : KHD

Engine : F6L613

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
                  : (1.85...2.05)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 6- 3- 5- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-75-120-195-240-315  
Tolerance + -<sup>o</sup> : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1130  
-----  
Contr.-rod trav.mm: 13.40...13.50  
-----  
Del.quantity cm3/ : 7.1...7.2  
-----  
100H.: (6.9...7.3)  
-----  
Dispersion cm3/ : 0.2  
-----  
100H.: (0.3)  
-----

2nd speed 1/min: 250.0  
Contr.-rod trav. m: 5.9...6.1

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 500  
Contr.-rod travelmm: 15.60...16.40

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1130  
Del.quantity cm3/ : 71.0...72.0  
1000H.: (69.5...73.5)  
Dispersion cm3/ : 2.00  
1000H.: (3.50)

## HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 500  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 12.40  
Speed 1/min : 1175...1190  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1210...1240  
4th speed 1/min : 1400  
C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 6.0

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 7.50

Speed 1/min : 250  
C-rod trav.mm : 5.90...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 285...325

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1130  
C-rod trav.mm : 13.40...13.50  
2nd speed 1/min : 600  
C-rod trav.mm : 14.60...14.70  
3rd speed 1/min : 790  
C-rod trav.mm : 14.40...14.60  
4th speed 1/min : 1020  
C-rod trav.mm : 13.60...13.90

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm3/ : 76.5...78.5  
1000H.: (75.0...80.0)  
Speed 1/min : 1000  
Del.quantity cm3/ : 73.5...75.5  
1000H.: (72.0...77.0)

#### SETTING CONTROL-ROD STOP

Speed 1/min : 600

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 12.40  
Speed 1/min : 1175...1190

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4.0 A 5  
Edition : 27.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 400 844 092  
Injection pump  
Pump designation : PES4A90D41GRS2666-2  
EP type number : 0 410 894 033  
Governor  
Governor design. : RQV300...1300AB1065-13L  
Governor no. : 0 420 212 208

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM364

1st version kW : 64.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000  
Inlet press., bar : 1.00  
Calibrating nozzle-holder assembly : 0 681 343 009  
Opening pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
                  : (2.20...2.40)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 1300  
-----  
Contr.-rod trav.mm: 10.50...10.60  
-----  
Del.quantity cm3/ : 6.2...6.3  
-----  
100H.: (6.0...6.5)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.5)  
-----  
2nd speed 1/min: 300.0  
Contr.-rod trav. m: 8.0...8.6  
Del.quantity cm3/ : 1.0...1.2  
100H.: (0.8...1.4)  
Dispersion cm3/ : 0.2  
100H.: (0.4)

(B) Setting of injection pump with externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 300  
Sleeve travel mm: 0.80...1.30  
2nd speed 1/min: 500  
Sleeve travel mm: 2.30...2.80  
3rd speed 1/min: 750  
Sleeve travel mm: 4.10...4.30  
4th speed 1/min: 1500  
Sleeve travel mm: 8.50...8.60

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1500  
Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1300  
Del.quantity cm3/ : 62.0...63.0  
1000H.: (60.0...65.0)  
Dispersion cm3/ : 3.00  
1000H.: (5.00)

## HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 107...115

Testing:

1st c-rod trav.mm : 9.50  
Speed 1/min : 1340...1350  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1450...1480  
4th speed 1/min : 1600  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever  
position degrees: 69...77

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 9.80  
Speed 1/min : 300  
C-rod trav.mm : 8.20...8.40  
C-rod trav.mm : 2.00  
Speed 1/min : 550...610

TORQUE CONTROL

Torque-control curve - 1st version  
1st speed 1/min : 1300  
C-rod trav.mm : 10.50...10.60  
2nd speed 1/min : 750  
C-rod trav.mm : 11.50...11.60  
3rd speed 1/min : 1000  
C-rod trav.mm : 11.10...11.30  
4th speed 1/min : 1100  
C-rod trav.mm : 10.70...11.00

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750  
Del.quantity cm3/ : 55.0...58.0  
1000H.: (52.5...60.5)  
Speed 1/min : 1000  
Del.quantity cm3/ : 57.0...60.0  
1000H.: (54.5...62.5)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 9.50  
Speed 1/min : 1340...1350

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 78.0...88.0  
1000H.: (75.0...91.0)

M15

Contr.-rod trav.mm: 16.00...16.40

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 8.00...8.60  
Del.quantity cm3/ : 10.0...12.0  
1000H.: (8.0...14.0)  
Dispersion cm3/ : 2.50  
1000H.: (4.50)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4,0 A 6  
Edition : 27.03.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 400 844 093  
Injection pump  
Pump designation : PES4A90D41ORS2666-2  
EP type number : 0 410 894 033  
Governor  
Governor design. : RQV300...1300AB1065-  
14L  
Governor no. : 0 420 212 209  
Customer-spec. information  
Customer : DAIMLER-BENZ  
Engine : OM364

1st version kW : 64.0  
Speed 1/min: 2600

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000  
Inlet press., bar : 1.00  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 015  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 2.25...2.35  
: (2.20...2.40)



Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 3- 4- 2

SD ang. spacing<sup>o</sup>CS: 0-90-180-270  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1300

Contr.-rod trav.mm: 10.50...10.60

Del.quantity cm<sup>3</sup>/ : 6.2...6.3

100H.: (6.0...6.5)

Dispersion cm<sup>3</sup>/ : 0.3

100H.: (0.5)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.0...8.6

Del.quantity cm<sup>3</sup>/ : 1.0...1.2

100H.: (0.8...1.4)

Dispersion cm<sup>3</sup>/ : 0.2

100H.: (0.4)

(B) Setting of injection pump with  
externally-mounted governor

#### SLEEVE TRAVELS

1st speed 1/min: 300

Sleeve travel mm: 0.80...1.30

2nd speed 1/min: 500

Sleeve travel mm: 2.30...2.80

3rd speed 1/min: 750

Sleeve travel mm: 4.10...4.30

4th speed 1/min: 1500

Sleeve travel mm: 8.50...8.60

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 1500

Cont.-rod travelmm: 15.20...17.80

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 1300

Del.quantity cm<sup>3</sup>/ : 62.0...63.0

1000H.: (60.0...65.0)

Dispersion cm<sup>3</sup>/ : 3.00

1000H.: (5.00)

#### HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 106...114

Testing:

1st c-rod trav.mm : 9.50

Speed 1/min : 1340...1350

2nd c-rod trav.mm : 4.00

Speed 1/min : 1450...1480

4th speed 1/min : 1600

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever

position degrees: 71...79

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.80

Speed 1/min : 300

C-rod trav.mm : 8.20...8.40

C-rod trav.mm : 2.00

Speed 1/min : 540...600

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1300

C-rod trav.mm : 10.50...10.60

2nd speed 1/min : 750

C-rod trav.mm : 11.50...11.60

3rd speed 1/min : 1000

C-rod trav.mm : 11.10...11.30

4th speed 1/min : 1100

C-rod trav.mm : 10.70...11.00

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 750

Del.quantity cm<sup>3</sup>/ : 55.0...58.0

1000H.: (52.5...60.5)

Speed 1/min : 1000

Del.quantity cm<sup>3</sup>/ : 57.0...60.0

1000H.: (54.5...62.5)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 9.50

Speed 1/min : 1340...1350

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 78.0...88.0

1000H.: (75.0...91.0)

Contr.-rod trav.mm: 16.00...16.40

LOW IDLE

Speed 1/min : 300  
Contr.-rod trav.mm: 8.00...8.60  
Del.quantity cm<sup>3</sup>/ : 10.0...12.0  
1000H.: (8.0...14.0)  
Dispersion cm<sup>3</sup>/ : 2.50  
1000H.: (4.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 9,2 F 1  
Edition : 28.08.87  
Superceeded : 11.85  
Calibrating oil : ISO-4113

Combination no. : 0 400 845 079

Injection pump  
Pump designation : PESSA95D320LS2504  
EP type number : 0 410 895 984  
Governor  
Governor design. : RQ250/1100AB1197R  
Governor no. : 0 420 201 639

Customer-spec. information  
Customer : MAN

Engine : D2565 MUL

1st version kW : 141.0  
Speed 1/min: 2200

TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 003

Outside diameter  
x Wall thickness : 6.00X2.00X600  
x Length mm

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

START OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
: (1.45...1.65)

Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 3- 5- 4- 2

SD ang. spacing<sup>o</sup>CS: 0-72-144-216-288  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 1100  
-----  
Contr.-rod trav.mm: 11.30...11.40  
-----  
Del.quantity cm3/ : 11.4...11.6  
-----  
100H.: (11.2...11.8)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav, m: 6.4...6.6  
Del.quantity cm3/ : 1.5...2.1  
100H.: (1.2...2.3)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

#### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Contr.-rod travelmm: 15.60...16.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1100  
Del.quantity cm3/ : 114.0...116.0  
1000H.: (112.0...118.0)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

#### HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 10.30  
Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1195...1225  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250

M20

Contr.-rod trav.mm: 6.5

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.00  
Speed 1/min : 250  
C-rod trav.mm : 6.40...6.60  
C-rod trav.mm : 2.00  
Speed 1/min : 370...410

#### TORQUE CONTROL

Dimension a mm : 0.40  
Torque-control curve - 1st version  
1st speed 1/min : 1100  
C-rod trav.mm : 11.30...11.40  
2nd speed 1/min : 600  
C-rod trav.mm : 11.70...11.80  
3rd speed 1/min : 940  
C-rod trav.mm : 11.50...11.70  
4th speed 1/min : 1015  
C-rod trav.mm : 11.40...11.60

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 113.0...116.0  
1000H.: (110.5...118.5)  
Speed 1/min : 800  
Del.quantity cm3/ : 115.5...118.5  
1000H.: (113.0...121.0)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 10.30  
Speed 1/min : 1145...1160

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 147.0...157.0  
1000H.: (144.0...160.0)  
Contr.-rod trav.mm: 15.70...16.30

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 6.40...6.60  
Del.quantity cm3/ : 15.0...21.0  
1000H.: (12.5...23.5)  
Dispersion cm3/ : 3.00  
1000H.: (5.00)

#### Remarks:

: MAN-NR. 2-7500

Set idle stop at 250 min. -1 to a  
control-rod travel of 6.5 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,1 K1  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 400 846 379  
Injection pump  
Pump designation : PES6A95D410LS2489  
EP type number : 0 410 896 949  
Governor  
Governor design. : RQ250/1050AB894DL  
Governor no. : 0 420 202 256

Customer-spec. information  
Customer : MAN

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000  
Inlet press., bar : 1.00  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 003  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600  
(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 1.50...1.60  
                  : (1.45...1.65)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

### BASIC SETTING

1st speed 1/mi: 1050  
-----  
Contr.-rod trav.mm: 10.00...10.10  
-----  
Del.quantity cm3/ : 10.1...10.3  
-----  
100H.: (9.9...10.5)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav. m: 5.9...6.1  
Del.quantity cm3/ : 1.2...1.8  
100H.: (0.9...2.0)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

### SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Contr.-rod travelmm: 15.40...16.40

### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1050  
Del.quantity cm3/ : 101.5...103.5  
1000H.: (99.5...105.5)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

### HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 15.9

Testing:  
1st c-rod trav.mm : 9.00  
Speed 1/min : 1095...1110  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1140...1170

### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 6.0

Testing:  
Speed 1/min : 100

M22

C-rod trav.mm min : 7.50  
Speed 1/min : 250  
C-rod trav.mm : 5.90...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 360...400

### TORQUE CONTROL

Dimension a mm : 0.35  
Torque-control curve - 1st version  
1st speed 1/min : 1050  
C-rod trav.mm : 10.00...10.10  
2nd speed 1/min : 500  
C-rod trav.mm : 10.50...10.60  
4th speed 1/min : 960  
C-rod trav.mm : 10.10...10.30

### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 99.5...103.5  
1000H.: (97.5...105.5)  
Speed 1/min : 700  
Del.quantity cm3/ : 99.5...103.5  
1000H.: (97.5...105.5)

### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 9.00  
Speed 1/min : 1095...1110

### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 116.5...126.5  
1000H.: (113.5...129.5)  
Contr.-rod trav.mm: 12.50...14.50

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MAN 11,1P21  
 Edition : 22.05.87  
 Superceeded : 12.9.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 400 846 502  
 Injection pump  
 Pump designation : PES6A95D41OLS2542  
 EP type number : 0 410 896 936  
 Governor  
 Governor design. : RQ250/1100AB1137-2L  
 Governer no. : 0 420 200 084

Customer-spec. information  
 Customer : MAN

Engine : D2566 M/MF

1st version kW : 177.0  
 Speed 1/min: 1500  
 2nd version kW : 168.0  
 Speed 1/min: 1500

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.00  
 Calibrating nozzle-holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 1.50...1.60  
 : (1.45...1.65)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/mi: 1100  
 -----  
 Contr.-rod trav.mm: 12.00...12.10  
 -----  
 Del.quantity cm3/ : 12.4...12.6  
 -----  
 100H.: (12.2...12.8)  
 -----  
 Dispersion cm3/ : 0.3  
 -----  
 100H.: (0.6)  
 -----  
 2nd speed 1/min: 250.0  
 Contr.-rod trav. m: 6.5...6.7  
 Del.quantity cm3/ : 0.8...1.4  
 100H.: (0.5...1.6)  
 Dispersion cm3/ : 0.3  
 100H.: (0.5)

**SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed 1/min: 600  
 Contr.-rod travelmm: 15.60...16.40

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 1100  
 Del.quantity cm3/ : 124.5...126.5  
 1000H.: (122.5...128.5)  
 Dispersion cm3/ : 3.00  
 1000H.: (6.00)  
 2nd version  
 Speed 1/min: 1100  
 Del.quantity cm3/ : 118.0...120.0\*  
 1000H.: (116.0...122.0)

**HIGHEST RATED SPEED**

Setting point:  
 Speed 1/min : 600  
 Contr.-rod trav.mm: 16.0

Testing:  
 1st c-rod trav.mm : 11.00

Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1195...1225

Setting point:

Speed 1/min : 600 \*  
Contr.-rod trav.mm: 16.0

Testing:

1st c-rod trav.mm : 11.0 \*  
Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1195...1225

LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.50  
Speed 1/min : 250  
C-rod trav.mm : 5.90...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 360...400

TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100  
C-rod trav.mm : 12.00...12.10  
2nd speed 1/min : 500  
C-rod trav.mm : 12.00...12.20

Torque-control curve - 2nd version

1st speed 1/min : - \*  
C-rod trav.mm : -  
2nd speed 1/min : -  
C-rod trav.mm : -

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 500  
Del.quantity cm3/ : 107.5...113.5  
1000H.: (105.5...115.5)

Speed 1/min : 750  
Del.quantity cm3/ : 110.5...113.5  
1000H.: (108.0...116.0)

Speed 1/min : 500  
Del.quantity cm3/ : 102.0...108.0 \*  
1000H.: (100.0...110.0)

Speed 1/min : 750  
Del.quantity cm3/ : 106.0...109.0 \*  
1000H.: (104.0...111.0)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.00

M25

Speed 1/min : 1145...1160

2nd version

1mm control-rod travel less than  
full-load trav.mm: 11.00

Speed 1/min : 1145...1160 \*

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 122.0...132.0  
1000H.: (119.0...135.0)  
Contr.-rod trav.mm: 15.50...15.90

Remarks:

: MAN-NR. 2-7409

\* Version 2

\*Tropics version



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MAN 11,4 B4  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 400 846 532  
Injection pump  
Pump designation : PES6A95D410LS2639-1  
EP type number : 0 410 896 920  
Governor  
Governor design. : RQ250/1100AB1137-9L  
Governor no. : 0 420 200 091

Customer-spec. information  
Customer : MAN

Engine : D2566MF/220

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 000  
Inlet press., bar : 1.00  
Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar : 25...27  
Prestroke mm : 1.50...1.60  
                  : (1.45...1.55)  
Contr.-rod trav.mm : 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav.mm: 14.30...14.40  
-----  
Del.quantity cm3/ : 12.4...12.6  
-----  
100H.: (12.2...12.8)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav. m: 7.4...7.6  
Del.quantity cm3/ : 1.0...1.6  
100H.: (0.7...1.8)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Contr.-rod travelmm: 15.60...16.40

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del.quantity cm3/ : 124.0...126.0  
1000H.: (122.0...128.0)  
Dispersion cm3/ : 3.50  
1000H.: (6.00)

## HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 11.80  
Speed 1/min : 1145...1160  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1240...1270  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.00

## LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 7.5

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 8.90  
Speed 1/min : 250  
C-rod trav.mm : 7.40...7.60  
C-rod trav.mm : 2.00  
Speed 1/min : 390...430

TORQUE CONTROL

Dimension a mm : 0.65  
Torque-control curve - 1st version  
1st speed 1/min : 1100  
C-rod trav.mm : 12.80...12.90  
2nd speed 1/min : 600  
C-rod trav.mm : 14.30...14.40  
3rd speed 1/min : 865  
C-rod trav.mm : 13.80...14.00  
4th speed 1/min : 940  
C-rod trav.mm : 13.10...13.30

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 1100  
Del.quantity cm3/ : 119.0...123.0  
1000H.: (116.5...125.5)  
Speed 1/min : 500  
Del.quantity cm3/ : 124.0...127.0  
1000H.: (121.5...129.5)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 11.80  
Speed 1/min : 1145...1160

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 105.0...115.0  
1000H.: (102.0...118.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 4,0 E  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 400 874 242  
Injection pump  
Pump designation : PES4A90D41ORS2728  
EP type number : 0 410 894 030  
Governor  
Governor design. : RSV350...750AOC2006-4L  
Governor no. : 0 420 232 465

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM364

1st version kW : 36.0  
Speed 1/min: 1500

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
: (2.20...2.40)

Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 3- 4- 2

SD ang. spacing°CS: 0-90-180-270  
Tolerance + - : 0.50 (0.75)

## BASIC SETTING

1st speed 1/mi: 700

Contr.-rod trav.mm: 12.00...12.10

Del.quantity cm3/ : 5.7...5.9

100H.: (5.5...6.1)

Dispersion cm3/ : 0.3

100H.: (0.4)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 6.9...7.1

Del.quantity cm3/ : 1.0...1.4

100H.: (0.8...1.6)

Dispersion cm3/ : 0.2

100H.: (0.4)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0.30...0.10

Governor-spring reload

Notch setting x : 2.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 700

Del.quantity cm3/ : 57.0...59.0

1000H.: (55.0...61.0)

Dispersion cm3/ : 3.00

1000H.: (4.50)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 26...34

Testing:

1st c-rod trav.mm : 11.00

Speed 1/min : 750...755

2nd c-rod trav.mm : 4.00

Speed 1/min : 780...793

4th speed 1/min : 850.0

C-rod trav.mm : 0.30...1.40

LOWEST RATED SPEED I

Control-lever

position degrees: 12...20

Setting point w/out aux. spring

Speed 1/min : 350

Contr.-rod trav.mm: 7.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 19.50

Speed 1/min : 350

C-rod trav.mm : 6.90...7.10

C-rod trav.mm : 2.00

Speed 1/min : 375...405

SET IDLE AUXILIARY SPRING

Speed 1/min : 2.00

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.00

Speed 1/min : 750...755

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 78.0...88.0

1000H.: (75.0...91.0)

Contr.-rod trav.mm: 16.50...16.90

Remarks:

Observe VDT-I-420/120

0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 8,3 J  
Edition : 7.86  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 400 876 172  
Injection pump  
Pump designation : PES6A80D420LS2054  
Governor  
Governor design. : RSV300...1000A2B461D  
R

Customer-spec. information  
Customer : CASE

Engine : A401D

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Inlet press., bar : 1.5  
Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 9 681 230 706

Outside diameter  
x Wall thickness  
x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar : 2,15...2,25

Prestroke mm : 9,0  
: 1-5-3-6-2-4

SD ang. spacing °CS : 0-60-120-180-240-300  
Tolerance + - ° : 0,5 (0,75)

## BASIC SETTING

NO2

1st speed 1/mi: 1000

Contr.-rod trav.mm: 9,0

Del.quantity cm<sup>3</sup>/ : 5,5...6,0

100H.: (-)

2nd speed 1/min: 200

Contr.-rod trav. m: 6,0

Del.quantity cm<sup>3</sup>/ : 1,3...2,2

100H.: (-)

## SLEEVE POSITION

Control-lever position

Degree: -3

Speed 1/min: 800

Contr.-rod travelmm: 0,3...1,0

Governor-spring reload

Notch setting x : -

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 980

Del.quantity cm<sup>3</sup>/ : 64,0...65,0

1000H.: (62,5...66,5)

## HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 42...50

Testing:

1st c-rod trav.mm : 4,6

Speed 1/min : 1070

2nd c-rod trav.mm : 2,0

Speed 1/min : 1120

3rd c-rod trav.mm : 0,7

Speed 1/min : 1180

## LOWEST RATED SPEED I

Control-lever

position degrees: 19...27

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 5,5

Testing:

Speed 1/min : 150

C-rod trav.mm min : 19,0

Speed 1/min : 300

C-rod trav.mm : 5,2...5,8

C-rod trav.mm : 2,4

Speed 1/min : 400

Speed 1/min : 500

C-rod trav.mm max : 1,0

## TORQUE CONTROL

Dimension a mm : 980 0  
C-rod trav.mm : .0.01 700 0  
2nd speed 1/min : ,75..  
C-rod trav.mm : .1,05 400 0  
3rd speed 1/min : ,75..  
C-rod trav.mm : .1,05

### FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 700  
Speed 1/min : 71,0.  
Del.quantity cm3/ : ..72,0 (67,5  
1000H.: ...73,5)  
Charge press. hPa : 600  
Speed 1/min : 70,0.  
Del.quantity cm3/ : ..72,0 (67,0  
1000H.: ...75,0)

### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 76,0...84,0

### HIGH IDLE

1st version

Charge press. hPa : 1090  
Speed 1/min : 13,5.  
Contr.-rod trav.mm: ..21,5

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 5,7 W 11  
 Edition : 27.03.87  
 Superceeded : -  
 Calibrating oil : ISO-4113  
 Combination no. : 0 400 876 309  
 Injection pump  
 Pump designation : PES6A90D410RS2569  
 EP type number : 0 410 896 071  
 Governor  
 Governor design. : RSV350...1400A0C1135  
 -1L  
 Governor no. : 0 420 232 425

Customer-spec. information  
 Customer : DB

Engine : OM 352

1st version kW : 88.0  
 Speed 1/min: 2400

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

NO4

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
 Tolerance + -<sup>o</sup> : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 1400

Contr.-rod trav.mm: 9.80...9.90

Del.quantity cm3/ : 5.4...5.5

100H.: (5.2...5.7)

Dispersion cm3/ : 0.3

100H.: (0.4)

2nd speed 1/min: 350.0

Contr.-rod trav. m: 7.9...8.1

Del.quantity cm3/ : 0.9...1.5

100H.: (0.7...1.7)

Dispersion cm3/ : 0.2

100H.: (0.4)

**SLEEVE POSITION**

Control-lever position

Degree: -3

Speed 1/min: 800

Cont.-rod travelmm: 0.30...1.00

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1400

Del.quantity cm3/ : 54.5...55.5

1000H.: (52.5...57.5)

Dispersion cm3/ : 3.00

1000H.: (4.50)

**HIGHEST RATED SPEED**

1st version

Control-lever

position degrees: 65...73

**Testing:**

1st c-rod trav.mm : 8.80

Speed 1/min : 1440...1450

2nd c-rod trav.mm : 4.00

Speed 1/min : 1475...1505

3rd c-rod trav.mm : 4.00

Speed 1/min : 1505...1535

4th speed 1/min : 1600

C-rod trav.mm : 0.30...1.70

**LOWEST RATED SPEED I**

Control-lever  
position degrees: 21...29  
Setting point w/out aux. spring  
Speed 1/min : 350  
Contr.-rod trav.mm: 7.5

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 19.00  
Speed 1/min : 350  
C-rod trav.mm : 7.40...7.60  
C-rod trav.mm : 2.00  
Speed 1/min : 590...650

TORQUE CONTROL  
Torque-control curve - 1st version  
1st speed 1/min : 1400  
C-rod trav.mm : 9.80...9.90  
2nd speed 1/min : 500  
C-rod trav.mm : 10.80...10.90  
3rd speed 1/min : 950  
C-rod trav.mm : 10.30...10.60

FUEL-DELIVERY CHARACTERISTICS  
Speed 1/min : 500  
Del.quantity cm3/ : 46.5...49.5  
1000H.: (44.5...51.5)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than  
full-load trav.mm: 8.80  
Speed 1/min : 1440...1450

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 78.0...88.0  
1000H.: (75.0...91.0)  
Contr.-rod trav.mm: 16.00...16.40

Remarks:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : DEE 6,6 B  
 Edition : 9.87  
 Superceeded : 7.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 276 017  
 Injection pump  
 Pump designation : PES6A100D41ORS3020  
 Governor  
 Governor design. : RSV400...1100A2B660  
 DL

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6404 A

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6,00x2,00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Contr.-rod trav.mm: 10.00  
 Cam sequence : 1-5-3-6-2-4

SD ang. spacing°CS: 0-60-120-180-240-300  
 Tolerance + - : 0.50(0.75)

SD mark cyl. no. : 1

**BASIC SETTING**

1st speed 1/mi: 1100  
 -----  
 Contr.-rod trav.mm: 10.00  
 -----  
 Del.quantity cm3/ : 10.4...10.6  
 -----  
 100H.: (10.2...10.8)  
 -----  
 Dispersion cm3/ : 0.3  
 -----  
 100H.: (-)  
 -----  
 2nd speed 1/min: 400  
 Contr.-rod trav. m: 6.30  
 Del.quantity cm3/ : 1.2...1.6  
 100H.: (1.0...1.8)  
 Dispersion cm3/ : 0.3  
 100H.: (-)

**SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed 1/min: 800  
 Cont.-rod travelmm: 0.30...1.40

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 1100  
 Charge press. hPa : 500  
 Del.quantity cm3/ : 104.0...106.0  
 1000H.: (102.0...108.0)  
 Dispersion cm3/ : 3.0  
 1000H.: (-)

**HIGHEST RATED SPEED**

1st version  
 Control-lever  
 position degrees: 40...48

Testing:  
 1st c-rod trav.mm : 9.00  
 Speed 1/min : 1145...1155  
 2nd c-rod trav.mm : 4.80  
 Speed 1/min : 1200  
 4th speed 1/min : 1350  
 C-rod trav.mm : 0.30...1.70

**LOWEST RATED SPEED I**

Control-lever  
 position degrees: 17...25  
 Setting point w/out aux. spring  
 Speed 1/min : 400

Contr.-rod trav.mm: 5.80  
Speed 1/min : 400  
C-rod trav.mm : 6.20...6.40  
C-rod trav.mm : 3.0  
Speed 1/min : 480  
Speed 1/min : 600  
C-rod trav.mm max : 1.00

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 1100  
C-rod trav.mm : 10.00  
2nd speed 1/min : 750  
C-rod trav.mm : 10.50

compensator (LDA,ADA,ALDA)

#### 1st version

Setting  
Speed 1/min : 550  
Pressure hPa : 70  
Contr.-rod trav.mm: ?

#### Measurement

Speed 1/min : 550

1st pressure hPa : 500  
C-rod trav.mm : 10.00

#### FUEL-DELIVERY CHARACTERISTICS

##### 1st version

Charge press. hPa : 500  
Speed 1/min : 750  
Del.quantity cm<sup>3</sup>/ : 113.0...116.0  
1000H.: (110.0...119.0)

Charge press. hPa : -  
Speed 1/min : 550  
Del.quantity cm<sup>3</sup>/ : 62.0...68.0  
1000H.: (60.0...70.0)

#### ROTATIONAL-SPEED LIMITATION

##### 1st version

1mm control-rod travel less than

full-load trav.mm: 9.00  
Speed 1/min : 1145...1155

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 155.0...175.0  
1000H.: (-)

#### HIGH IDLE

Speed 1/min : 1200

N07

Del.quantity cm<sup>3</sup>/ : 26.5...36.5  
1000H.: (-)

#### LOW IDLE

Speed 1/min : 400  
Del.quantity cm<sup>3</sup>/ : 12.0...16.0  
1000H.: (-)

#### Remarks:

Start-of-delivery mark at 14° angular displacement of the cam after start of delivery of cylinder 1 with control-rod travel = 10.50 mm.

#### APPLICATION

Tractor (tractor engines)

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : SSC 14,0 A1  
 Edition : 22.05.87  
 Superceeded : 10.85  
 Calibrating oil : ISO-4113

Combination no. : 0 401 830 711

Injection pump  
 Pump designation : PE12P100A520/6RS3103  
 -1

EP type number : 0 411 800 703  
 Governor  
 Governor design. : RQV375...1000PA639-2  
 Governor no. : 0 421 813 514

Customer-spec. information  
 Customer : SSCM

Engine : V 12.520 AN

1st version kW : 220.0  
 Speed 1/min: 2000

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

NOB

Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 1- 8- 5- 10- 3- 7-  
 6- 11- 2- 9- 4- 12

SD ang. spacing°CS: 0-15-60-75-120-135-  
 180-195-240-255-300-  
 315

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed 1/mi: 1000

Contr.-rod trav.mm: 11.60...11.70

Del.quantity cm3/ : 9.3...9.5

100H.: (9.1...9.7)

Dispersion cm3/ : 0.3

100H.: (0.6)

2nd speed 1/min: 375.0

Contr.-rod trav. m: 7.6...7.8

Del.quantity cm3/ : 1.0...1.4

100H.: (0.7...1.6)

Dispersion cm3/ : 0.3

100H.: (0.5)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 350

Sleeve travel mm: 1.10...1.60

2nd speed 1/min: 450

Sleeve travel mm: 3.30...3.70

3rd speed 1/min: 700

Sleeve travel mm: 5.20...5.60

4th speed 1/min: 1000

Sleeve travel mm: 7.60...7.80

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 1075

Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1000

Del.quantity cm3/ : 93.5...95.5

1000H.: (91.5...97.5)

Dispersion cm3/ : 3.50

1000H.: (6.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 116...124

Testing:

1st c-rod trav.mm : 10.60

Speed 1/min : 1040...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1125...1155

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 71...79

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.20

Speed 1/min : 375

C-rod trav.mm : 7.60...7.80

CONSTANT REGULATION

Speed 1/min : 375...475

SWITCH-OVER POINT

Speed 1/min : 320 (340)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 10.60

Speed 1/min : 1040...1050

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 230.0...250.0

1000H.: (226.0...254.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,8 E 1  
Edition : 21.05.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 329  
Injection pump  
Pump designation : PE6P100A72ORS15  
EP type number : 0 411 806 106  
Governor  
Governor design. : RQ250/1100PA269R  
Governor no. : 0 421 801 050

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM 355

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar : 25...27  
Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1100  
-----  
Contr.-rod trav.mm: 13.00...13.10  
-----  
Del.quantity cm3/ : 11.8...12.0  
-----  
100H.: (11.6...12.2)  
-----  
Dispersion cm3/ : 0.3  
-----  
100H.: (0.6)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav. m: 7.4...7.6  
Del.quantity cm3/ : 1.7...2.3  
100H.: (1.4...2.5)  
Dispersion cm3/ : 0.3  
100H.: (0.5)

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 600  
Contr.-rod travelmm: 15.60...16.40

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1100  
Del.quantity cm3/ : 118.5...120.5  
1000H.: (116.5...122.5)  
Dispersion cm3/ : 3.00  
1000H.: (6.00)

## HIGHEST RATED SPEED

Setting point:  
Speed 1/min : 600  
Contr.-rod trav.mm: 16.0

Testing:  
1st c-rod trav.mm : 12.00  
Speed 1/min : 1125...1145  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1195...1230  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.50

## LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 250  
Contr.-rod trav.mm: 6.0

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 7.00  
Speed 1/min : 250  
C-rod trav.mm : 5.90...6.10  
C-rod trav.mm : 2.00  
Speed 1/min : 385...425

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 450  
Del.quantity cm3/ : 101.0...105.0  
1000H.: (99.0...107.0)

ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 12.00  
Speed 1/min : 1125...1145

STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm3/ : 140.0...160.0  
1000H.: (136.0...164.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ENA 11,9 A  
Edition : 28.08.87  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 550  
Injection pump  
Pump designation : PE6P120A32ORS257  
EP type number : 0 411 826 075  
Governor  
Governor design. : RQV250...1050PA808-2  
Governor no. : 0 421 813 666

Customer-spec. information  
Customer : ENASA

Engine : 96 T1 CX

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 1 688 901 019  
Opening  
pressure, bar : 207...210  
Perforated-plate  
diameter mm : 0,8  
Test inj. tubing : 1 680 750 067  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)  
Contr.-rod trav.mm: 9.00...12.00

Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>0</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 1030  
-----  
Contr.-rod trav.mm: 12.30...12.40  
-----  
Del.quantity cm<sup>3</sup>/ : ?  
-----  
100H.: (?)  
-----  
2nd speed 1/min: 250.0  
Contr.-rod trav. m: ?  
Del.quantity cm<sup>3</sup>/ : 1.7...2.3  
100H.: (1.4...2.6)  
Dispersion cm<sup>3</sup>/ : 0.8  
100H.: (1.2)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250  
Sleeve travel mm: 1.00...1.40  
2nd speed 1/min: 350  
Sleeve travel mm: 1.70...2.30  
3rd speed 1/min: 700  
Sleeve travel mm: 4.50...5.10  
4th speed 1/min: 1095  
Sleeve travel mm: 8.20...8.40  
5th speed 1/min: 1185  
Sleeve travel mm: 9.20...9.60

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1115  
Cont.-rod travelmm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 1030  
Charge press. hPa : 900  
Del.quantity cm<sup>3</sup>/ : ?  
1000H.: (?)

## HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 43...51

Testing:

1st c-rod trav.mm : 11.30  
Speed 1/min : 1090...1100  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1170...1200  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever  
position degrees: ?

Testing:

Speed 1/min : 100  
C-rod trav.mm min : 1.50  
Speed 1/min : 250  
C-rod trav.mm : ?

CONSTANT REGULATION

Speed 1/min : 250...370

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 500  
Pressure hPa : 900  
Contr.-rod trav.mm: 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : -  
C-rod trav.mm : 8.20...9.60  
2nd pressure hPa : 570  
C-rod trav.mm : 11.60...11.70  
3rd pressure hPa : 280  
C-rod trav.mm : 9.90...10.10

FUEL-DELIVERY CHARACTERISTICS

1st version

Charge press. hPa : 900  
Speed 1/min : 650  
Del.quantity cm3/ : ?  
1000H.: (?)

Charge press. hPa : -  
Speed 1/min : 500  
Del.quantity cm3/ : ?  
1000H.: (?)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.30  
Speed 1/min : 1090...1100

N13

STARTING FUEL DELIVERY

Speed 1/min : 100

LOW IDLE

Speed 1/min : 250  
Del.quantity cm3/ : 17.0...23.0  
1000H.: (14.0...26.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

Remarks:

Test specifications upon request.

APPLICATION

Special-purpose vehicle



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VOL 10,0 Q8  
Edition : 18.09.87  
Superceeded : 23.9.86  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 757  
Injection pump  
Pump designation : PE6P110A32ORS3108  
EP type number : 0 411 816 727  
Governor  
Governor design. : RQV250...1100PA649  
Governor no. : 0 421 813 346

Customer-spec. information  
Customer : VOLVO

Engine : THD100EA

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Calibrating nozzle-holder  
assembly : 0 681 343 009  
Opening  
pressure, bar : 172...175  
Test inj. tubing : 1 680 750 015  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 3.00...3.10  
                  : (2.95...3.15)  
Contr.-rod trav. mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 1

## BASIC SETTING

1st speed 1/mi: 700  
-----  
Contr.-rod trav. mm: 9.00...9.10  
-----  
Del. quantity cm<sup>3</sup>/ : 9.2...9.4  
-----  
100H.: (8.9...9.7)  
-----  
Dispersion cm<sup>3</sup>/ : 0.4  
-----  
100H.: (0.7)  
-----  
2nd speed 1/min: 250  
Contr.-rod trav. m: 5.3...5.5  
Del. quantity cm<sup>3</sup>/ : 2.9...3.3  
100H.: (2.6...3.5)  
Dispersion cm<sup>3</sup>/ : 0.3  
100H.: (0.6)

(B) Setting of injection pump with  
externally-mounted governor

## SLEEVE TRAVELS

1st speed 1/min: 250  
Sleeve travel mm: 1.10...1.30  
2nd speed 1/min: 500  
Sleeve travel mm: 4.10...4.90  
3rd speed 1/min: 700  
Sleeve travel mm: 6.30...6.70  
4th speed 1/min: 950  
Sleeve travel mm: 6.30...6.70  
5th speed 1/min: 1100  
Sleeve travel mm: 7.00...7.50

## SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed 1/min: 1175  
Cont.-rod travel mm: 15.20...17.80

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version  
Speed 1/min: 700  
Del. quantity cm<sup>3</sup>/ : 92.0...94.0  
1000H.: (89.0...97.0)  
Dispersion cm<sup>3</sup>/ : 4.00  
1000H.: (7.50)

## HIGHEST RATED SPEED

1st version

Control-lever  
position degrees: 61...69

Testing:  
1st c-rod trav.mm : 8.00  
Speed 1/min : 1160...1170  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1220...1250  
4th speed 1/min : 1350  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Control-lever  
position degrees: 7...15

Testing:  
Speed 1/min : 100  
C-rod trav.mm min : 6.80  
Speed 1/min : 250  
C-rod trav.mm : 5.30...5.50  
C-rod trav.mm : 2.00  
Speed 1/min : 350...410

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 8.00  
Speed 1/min : 1160...1170

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 160.0...190.0  
1000H.: (-)  
Contr.-rod trav.mm: 20.00...21.00

#### LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 5.30...5.50  
Del.quantity cm<sup>3</sup>/ : 29.0...33.0  
1000H.: (26.5...35.5)  
Dispersion cm<sup>3</sup>/ : 3.00  
1000H.: (6.00)

#### Remarks:

On activation of the starting solenoid,  
the start position must be reached.

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 11,0 R  
 Edition : 31.07.87  
 Superceeded : 3.85  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 805  
 Injection pump  
 Pump designation : PE6P110A320LS3814-10  
 EP type number : 0 411 816 741  
 Governor  
 Governor design. : RQ300/1150PA187-6  
 Governor no. : 0 421 801 155

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 159.0  
 Speed 1/min: 2300

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing°CS: 0-45-120-165-240-285  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/mi: 1150

Contr.-rod trav.mm: 12.40...12.50

Del. quantity cm3/ : 13.2...13.4

100H.: (12.9...13.6)

Dispersion cm3/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.3...8.5

Del. quantity cm3/ : 1.2...1.8

100H.: (0.9...2.0)

Dispersion cm3/ : 0.4

100H.: (0.7)

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 650

Cont.-rod travelmm: 13.20...14.00

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 1150

Del. quantity cm3/ : 132.0...134.0

1000H.: (129.5...136.5)

Dispersion cm3/ : 4.00

1000H.: (8.00)

**HIGHEST RATED SPEED**

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 13.6

Testing:

1st c-rod trav.mm : 11.50

Speed 1/min : 1195...1210

2nd c-rod trav.mm : 4.00

Speed 1/min : 1240...1270

4th speed 1/min : 1350

C-rod trav.mm : 0.00...1.50

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 8.4

Testing:

Speed 1/min : 100

C-rod trav.mm min : 10.00

Speed 1/min : 300

C-rod trav.mm : 8.30...8.50

C-rod trav.mm : 2.00

Speed 1/min : 430...470

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 110.0...114.0

1000H.: (107.0...117.0)

Dispersion cm3/ : 6.00

1000H.: (9.00)

SETTING CONTROL-ROD STOP

Speed 1/min : 600

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.50

Speed 1/min : 1195...1210

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 130.0...150.0

1000H.: (126.0...154.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MB 11,0 S  
Edition : 12.09.86  
Superceeded : -  
Calibrating oil : ISO-4113  
Combination no. : 0 401 846 823  
Injection pump  
Pump designation : PE6P110A32OLS3835  
EP type number : 0 411 816 749  
Governor  
Governor design. : RQ300/900PA187-14  
Governor no. : 0 421 801 357

Customer-spec. information  
Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 150.0  
Speed 1/min: 1800

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Calibrating nozzle-holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>D</sup>CS: 0-45-120-165-240-285  
Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

## BASIC SETTING

1st speed 1/mi: 900

Contr.-rod trav.mm: 12.50...12.60

Del.quantity cm<sup>3</sup>/ : 12.6...12.8

100H.: (12.3...13.0)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300.0

Contr.-rod trav. m: 8.0...8.2

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100H.: (1.3...2.4)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.7)

## SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 650

Cont.-rod travelmm: 13.20...14.00

## FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 900

Del.quantity cm<sup>3</sup>/ : 126.0...128.0

1000H.: (123.5...130.5)

Dispersion cm<sup>3</sup>/ : 4.00

1000H.: (8.00)

## HIGHEST RATED SPEED

Setting point:

Speed 1/min : 650

Contr.-rod trav.mm: 13.6

Testing:

1st c-rod trav.mm : 11.50

Speed 1/min : 940...955

2nd c-rod trav.mm : 4.00

Speed 1/min : 985...1015

4th speed 1/min : 1100

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 300

Contr.-rod trav.mm: 8.1

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.30

Speed 1/min : 300

C-rod trav.mm : 8.00

C-rod trav.mm : 2.00

Speed 1/min : 430...470

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm<sup>3</sup>/ : 124.0...128.0

1000H.: (121.0...131.0)

Dispersion cm<sup>3</sup>/ : 6.00

1000H.: (9.00)

SETTING CONTROL-ROD STOP

Speed 1/min : 600

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.50

Speed 1/min : 940...955

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 130.0...150.0

1000H.: (126.0...154.0)

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 11,0 S 1  
 Edition : 4.9.87  
 Superceeded : 12.9.86  
 Calibrating oil : ISO-4113  
 Combination no. : 0 401 846 824  
 Injection pump  
 Pump designation : PE6P110A320LS3835  
 EP type number : 0 411 816 749  
 Governor  
 Governor design. : RQV300...1150PAS24-1  
 Governor no. : 0 421 813 549

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM 441

1st version kW : 150.0  
 Speed 1/min: 1800

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

START OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>o</sup>CS: 0-45-120-165-240-285  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/mi: 900

Contr.-rod trav.mm: 12.90...13.00

Del.quantity cm<sup>3</sup>/ : 12.6...12.8  
 100H.: (12.3...13.0)

Dispersion cm<sup>3</sup>/ : 0.4  
 100H.: (0.8)

2nd speed 1/min: 300.0  
 Contr.-rod trav. m: 8.0...8.2  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100H.: (1.3...2.4)  
 Dispersion cm<sup>3</sup>/ : 0.4  
 100H.: (0.7)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 320  
 Sleeve travel mm: 1.50...1.70  
 2nd speed 1/min: 400  
 Sleeve travel mm: 2.30...2.70  
 3rd speed 1/min: 945  
 Sleeve travel mm: 8.30...8.70  
 4th speed 1/min: 1000  
 Sleeve travel mm: 9.40...10.00

**SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed 1/min: 920  
 Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version  
 Speed 1/min: 900  
 Del.quantity cm<sup>3</sup>/ : 126.0...128.0  
 1000H.: (123.5...130.5)  
 Dispersion cm<sup>3</sup>/ : 4.00  
 1000H.: (8.00)

HIGHEST RATED SPEED

1st version

Control-lever

position degrees: 50...58

Testing:

1st c-rod trav.mm : 11.90

Speed 1/min : 955...965

2nd c-rod trav.mm : 4.00

Speed 1/min : 1010...1040

4th speed 1/min : 1100

C-rod trav.mm : 0.00...1.00

LOWEST RATED SPEED I

Control-lever

position degrees: 16...24

Testing:

Speed 1/min : 100

C-rod trav.mm min : 9.50

Speed 1/min : 300

C-rod trav.mm : 8.00...8.20

CONSTANT REGULATION

Speed 1/min : 300...500

SWITCH-OVER POINT

Speed 1/min : 220 (240)

FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600

Del.quantity cm3/ : 124.0...128.0

1000H.: (121.0...131.0)

Dispersion cm3/ : 6.00

1000H.: (8.00)

ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 11.90

Speed 1/min : 955...965

STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm3/ : 130.0...150.0

1000H.: (126.0...154.0)

Remarks:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note inst. in remarks column

Test sheet : MB 11,0 S 4  
 Edition : 18.09.87  
 Superceeded : 12.9.86  
 Calibrating oil : IS0-4113  
 Combination no. : 0 401 846 830  
 Injection pump  
 Pump designation : PE6P110A320LS3835  
 EP type number : 0 411 816 749  
 Governor  
 Governor design. : RQV300...950PA829K  
 Govenor no. : 0 421 815 166

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : 0M441

1st version KW : 150.0  
 Speed 1/min: 1900

**TEST BENCH REQUIREMENTS**

Calibrating-oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Calibrating nozzle-holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test inj. tubing : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set constant delivery quant.  
 per values -----

**START OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Contr.-rod trav.mm: 9.00...12.00  
 Cam sequence : 6- 3- 5- 2- 4- 1

SD ang. spacing<sup>0</sup>CS: 0-45-120-165-240-285  
 Tolerance + - : 0.50 (0.75)

SD mark cyl. no. : 6

**BASIC SETTING**

1st speed 1/mi: 950

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm<sup>3</sup>/ : 12.6...12.8

100H.: (12.3...13.0)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.8)

2nd speed 1/min: 300

Contr.-rod trav. m: 8.8...8.9

Del.quantity cm<sup>3</sup>/ : 1.5...2.1

100H.: (1.2...2.3)

Dispersion cm<sup>3</sup>/ : 0.4

100H.: (0.7)

(B) Setting of injection pump with  
 externally-mounted governor

**SLEEVE TRAVELS**

1st speed 1/min: 300

Sleeve travel mm: 1.10...1.30

2nd speed 1/min: 500

Sleeve travel mm: 3.20...3.40

3rd speed 1/min: 800

Sleeve travel mm: 5.90...6.10

4th speed 1/min: 1000

Sleeve travel mm: 8.00...8.40

5th speed 1/min: 1050

Sleeve travel mm: 9.50...10.00

**SLEEVE POSITION**

Control-lever position

Degree: -1

Speed 1/min: 975

Cont.-rod travelmm: 15.20...17.80

**FULL-LOAD DELIV. AT FULL-LOAD STOP**

1st version

Speed 1/min: 950

Del.quantity cm<sup>3</sup>/ : 126.0...128.0

1000H.: (123.5...130.5)

Dispersion cm<sup>3</sup>/ : 4.00  
1000H.: (8.00)

#### HIGHEST RATED SPEED

1st version  
Control-lever  
position degrees: 57...65

#### Setting point:

Speed 1/min : 975  
Contr.-rod trav.mm: 16.5

#### Testing:

1st c-rod trav.mm : 12.10  
Speed 1/min : 990...1000  
2nd c-rod trav.mm : 4.00  
Speed 1/min : 1045...1075  
4th speed 1/min : 1300  
C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring  
Speed 1/min : 300  
Contr.-rod trav.mm: 8.9

#### Testing:

Speed 1/min : 100  
C-rod trav.mm min : 10.60  
Speed 1/min : 300  
C-rod trav.mm : 8.80...9.00

#### CONSTANT REGULATION

Speed 1/min : 300...450

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 975  
C-rod trav.mm : 13.10...13.20  
2nd speed 1/min : 600  
C-rod trav.mm : 12.90...13.10  
3rd speed 1/min : 750  
C-rod trav.mm : 13.10...13.30

#### SWITCH-OVER POINT

Speed 1/min : 220 (240)

#### FUEL-DELIVERY CHARACTERISTICS

Speed 1/min : 600  
Del.quantity cm<sup>3</sup>/ : 117.0...120.0  
1000H.: (114.0...123.0)

Dispersion cm<sup>3</sup>/ : 6.00  
1000H.: (9.00)

Speed 1/min : 750  
Del.quantity cm<sup>3</sup>/ : 120.0...124.0  
1000H.: (117.0...127.0)

Dispersion cm<sup>3</sup>/ : 6.00  
1000H.: (9.00)

#### ROTATIONAL-SPEED LIMITATION

1st version  
1mm control-rod travel less than

full-load trav.mm: 12.10  
Speed 1/min : 990...1000

#### STARTING FUEL DELIVERY

Speed 1/min : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...150.0  
1000H.: (126.0...154.0)

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : DAF 11,7 D1  
Edition : 18.09.87  
Superceeded : 15.5.87  
Calibrating oil : ISO-4113

Combination no. : 0 401 846 831

Injection pump  
Pump designation : PE6P120A32ORS3183-1Y  
EP type number : 0 411 826 765  
Governor  
Governor design. : RQ250/1000PA832  
Governor no. : 0 421 801 368

Customer-spec. information  
Customer : DAF

Engine : WS 282

1st version kW : 282.0  
Speed 1/min: 2000

## TEST BENCH REQUIREMENTS

Calibrating-oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Calibrating nozzle-holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Perforated-plate  
diameter mm : 0,8

Test inj. tubing : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set constant delivery quant.  
per values -----

## START OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)  
Contr.-rod trav.mm: 9.00...12.00  
Cam sequence : 1- 5- 3- 6- 2- 4

SD ang. spacing<sup>o</sup>CS: 0-60-120-180-240-300  
Tolerance + - : 0.50 (0.75)

#### BASIC SETTING

1st speed 1/mi: 850

Contr.-rod trav.mm: 13.10...13.20

Del.quantity cm<sup>3</sup>/ : 21.9...22.1

100H.: (21.6...22.4)

Dispersion cm<sup>3</sup>/ : 0.5

100H.: (0.9)

2nd speed 1/min: 250.0

Contr.-rod trav.m: 6.9...7.1

Del.quantity cm<sup>3</sup>/ : 1.4...2.0

100H.: (1.1...2.3)

Dispersion cm<sup>3</sup>/ : 0.8

100H.: (1.2)

#### SLEEVE POSITION

Control-lever position

Degree: -1

Speed 1/min: 550

Contr.-rod travelmm: 15.60...16.40

#### FULL-LOAD DELIV. AT FULL-LOAD STOP

1st version

Speed 1/min: 850

Charge press. hPa : 1000

Del.quantity cm<sup>3</sup>/ : 219.0...221.0

1000H.: (216.0...224.0)

Dispersion cm<sup>3</sup>/ : 5.00

1000H.: (9.00)

#### HIGHEST RATED SPEED

Setting point:

Speed 1/min : 550

Contr.-rod trav.mm: 16.0

Testing:

1st c-rod trav.mm : 12.10

Speed 1/min : 1035...1050

2nd c-rod trav.mm : 4.00

Speed 1/min : 1120...1150

4th speed 1/min : 1250

C-rod trav.mm : 0.00...1.00

#### LOWEST RATED SPEED I

Setting point w/out aux. spring

Speed 1/min : 250

Contr.-rod trav.mm: 7.0

Testing:

Speed 1/min : 100

C-rod trav.mm min : 8.50

Speed 1/min : 250

C-rod trav.mm : 6.90...7.10

C-rod trav.mm : 2.00

Speed 1/min : 350...390

#### TORQUE CONTROL

Torque-control curve - 1st version

1st speed 1/min : 850

C-rod trav.mm : 13.30...13.40

2nd speed 1/min : 1000

C-rod trav.mm : 13.20...13.40

compensator (LDA,ADA,ALDA)

1st version

Setting

Speed 1/min : 600

Pressure hPa : 1000

Contr.-rod trav.mm: 13.10...13.20

Measurement

Speed 1/min : 600

1st pressure hPa : -

C-rod trav.mm : 10.10...10.30

2nd pressure hPa : 570

C-rod trav.mm : 12.40...12.50

3rd pressure hPa : 310

C-rod trav.mm : 10.70...11.00

#### FUEL-DELIVERY CHARACTERISTICS

Charge press. hPa : -

Speed 1/min : 600

Del.quantity cm<sup>3</sup>/ : 144.0...146.0

1000H.: (141.0...149.0)

#### ROTATIONAL-SPEED LIMITATION

1st version

1mm control-rod travel less than

full-load trav.mm: 12.10

Speed 1/min : 1035...1050

#### STARTING FUEL DELIVERY

Speed 1/min : 100

Del.quantity cm<sup>3</sup>/ : 260.0...300.0

1000H.: (256.0...304.0)

LOW IDLE

Speed 1/min : 250  
Contr.-rod trav.mm: 6.90...7.10  
Del.quantity cm3/ : 14.0...20.0  
1000H.: (11.0...23.0)  
Dispersion cm3/ : 8.00  
1000H.: (12.00)

Remarks: